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(71)Applicant : SANKYO KK

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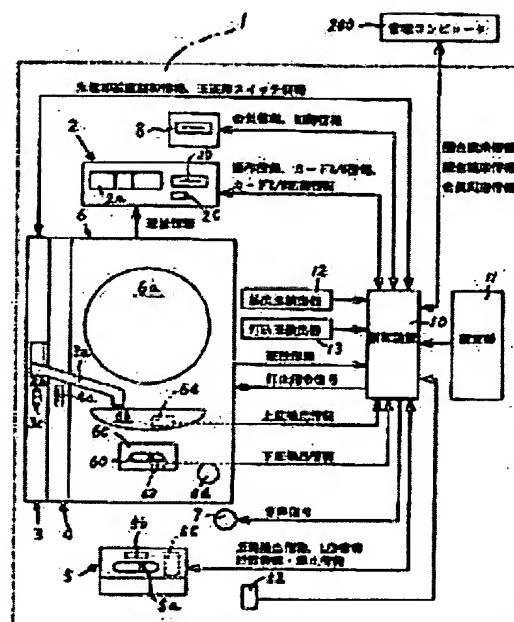
(72)Inventor : UGAWA SHOHACHI

(54) GAME DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To increase player's interest by determining, when a player is judged to have predetermined privileged gaining qualification, a prize exchange rate of game result value owned by the player to be more advantageous prize exchange rate for the player than that of the player without the privileged gaining qualification.

SOLUTION: An upper decorative plate of a game machine island is provided with a calling/issuing device 2 for each game machine 6, and a member card reader 8 on the side for each game machine 6. Information is read from a member card issued for a game house member, which is inserted into the member card reader 8, and the information is input to a control device 10 for discriminating whether a player has predetermined privileged gaining qualification. And a prize exchange rate of game result value owned by the player according to the discriminated result is decided. That is, if the player has privileged gaining qualification, more advantageous prize exchange rate for the player is determined than that of a player without the privileged gaining qualification.



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CLAIMS

[Claim(s)]

[Claim 1] it is possible to define a rate of premium exchange to game result value characterized by comprising the following which became a game person's possession as a result of a game in a game machine -- it object[for games]-equips

A qualification discriminating means which distinguishes whether a game person has the privilege acquisition qualification defined beforehand.

According to a discriminated result of this qualification discriminating means, a rate determination means of premium exchange to determine a rate of premium exchange of game result value used as a game person's

possession is included, and, as for this rate determination means of premium exchange, a game person is said privilege acquisition qualification.

[Claim 2]The equipment for games according to claim 1 including further recording medium issuing which publishes a recording medium which recorded information that a rate of premium exchange determined by information that game result value used as a game person's possession can be specified, and said rate determination means of premium exchange could be specified.

[Claim 3][in said privilege acquisition qualification] a game person who has said privilege acquisition qualification, Have which rank of several ranks from which a rate of premium exchange of said game result value differs, and said rate determination means of premium exchange, The equipment for games according to claim 1 characterized by determining a rate of premium exchange according to said rank of the game person when determining a rate of premium exchange of a game person who has said privilege acquisition qualification.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the equipment for games which can define the rate of premium exchange to the game result value which became a game person's possession in detail as a result of the game in a pachinko game machine, a coin game machine, or various kinds of game machines, such as a slot machine, about the equipment for games.

[0002]

[Description of the Prior Art]There was equipment for games which can provide rates of premium exchange, such as a cashing rate, in what is generally known from the former to the game result value of the pachinko ball etc. which became a game person's possession as a result of the game in a game machine, for example as this kind of equipment for games.

[0003]In an amusement center, there was a case where the rate of premium exchange of game result value was changed for every model of game machine. In this kind of equipment for games, the processing which defines the rate of premium exchange for every model of game machine to the game result value which calculated and calculated the game result value of game person possession was made. There were a case where such processing is performed for every game machine, and a case where it was carried out for every game machine install island. The rate of premium exchange defined in this conventional kind of equipment for games to the game result value which became a game person's possession as a result of a game was constant for every model of game machine.

[0004]

[Problem to be solved by the invention]Thus, when you are trying for the rates of premium exchange to differ for every model of game machine, a game person's concern about the height of the rate of premium exchange of game result value is becoming high. For this reason, the degree whose interest of a game person improves is considered to be influenced by not only a game result but the height of the rate of premium exchange of the game result value acquired by the game result.

[0005]However, as mentioned above, in the conventional equipment for games. The rate of premium exchange defined to the game result value which became a game person's possession as a result of a game for every model of game machine Since it was fixed, Among the game persons who play a game with the

game machine, since a difference was not given by a privilege etc., the actual condition was were not able to raise the game person's interest based on the rate of premium exchange.

[0006]this invention is invented in view of the starting actual condition, and comes out. The purpose is to provide the equipment for games which makes it possible to raise a game person's interest using the rate of premium exchange of **.

[0007]

[Means for solving problem]This invention according to claim 1 is equipment for games which can define the rate of premium exchange to the game result value which became a game person's possession as a result of the game in a game machine, The qualification discriminating means which distinguishes whether a game person has the privilege acquisition qualification defined beforehand, The rate of premium exchange of the game result value which became a game person's possession according to the discriminated result of this qualification discriminating means including a rate determination means of premium exchange to determine this rate determination means of premium exchange, When a game person has said privilege acquisition qualification, the rate of premium exchange of the game result value of game person possession is determined as the rate of premium exchange more advantageous to a game person than the case where a game person does not have said privilege acquisition qualification.

[0008]This invention according to claim 2 is added to the composition of the invention according to claim 1, The recording medium issuing which publishes the recording medium which recorded the information that the rate of premium exchange determined by the information that the game result value used as a game person's possession can be specified, and said rate determination means of premium exchange could be specified is included further.

[0009]This invention according to claim 3 in the composition of the invention according to claim 1 in addition, the game person who has said privilege acquisition qualification, Have which rank of several ranks from which the rate of premium exchange of said game result value differs in said privilege acquisition qualification, and said rate determination means of premium exchange, When determining the rate of premium exchange of the game person who has said privilege acquisition qualification, the rate of premium exchange is determined according to said rank of the game person.

[0010]

[Function]According to this invention according to claim 1, it is distinguished whether a game person has the privilege acquisition qualification defined beforehand by work of a qualification discriminating means. The rate of premium exchange of the game result value which became a game person's possession by work of the rate determination means of premium exchange according to the discriminated result of a qualification discriminating means is determined. When a game person has privilege acquisition qualification by the further work of the rate determination means of premium exchange, the rate of premium exchange of the game result value of game person possession is determined as the rate of premium exchange more advantageous to a game person than the case where a game person does not have privilege acquisition qualification. Thus, when it is judged that a game person has the privilege acquisition qualification defined beforehand, it is decided that it will be a rate of premium exchange whose rate of premium exchange of the game result value of game person possession is more advantageous to a game person than the case where it does not have the privilege acquisition qualification. For this reason, since it becomes advantageous in respect of the rate of premium exchange rather than the direction which the direction which has privilege acquisition qualification does not have even if it is the same game result value, when it has privilege acquisition qualification, a game person has a hope to the result of a game, and his interest improves on the occasion of a game.

[0011]According to this invention according to claim 2, in addition to an operation of the invention according to claim 1, it acts as follows. The recording medium which recorded the information that the rate of premium exchange determined by the information and the rate determination means of premium exchange which the game result value used as a game person's possession can be specified by work of recording medium issuing could be specified is published. Thus, since the game result value which became a game person's possession by issue of a recording medium, and its rate of premium exchange are specified by the recorded information on a recording medium, it becomes possible to exchange game result value for a premium etc. at the rate of premium exchange recorded on the recording medium.

[0012]According to this invention according to claim 3, in addition to an operation of the invention according to claim 1, it acts as follows. The game person who has privilege acquisition qualification has which rank of several ranks from which the rate of premium exchange of said game result value differs in said privilege acquisition qualification. When the further work of the rate determination means of premium

exchange determines the rate of premium exchange of the game person who has privilege acquisition qualification, the rate of premium exchange is determined according to the game person's rank. Thus, since it becomes possible to obtain a different rate of premium exchange according to a game person's rank, the game person who has privilege acquisition qualification has a hope to the result of a game further, and his interest improves further on the occasion of a game.

[0013]

[Mode for carrying out the invention]Below, an embodiment of the invention is described in detail based on Drawings. In following embodiments, although a pachinko game machine is shown as an example of a game machine, Not only that from which the game result value in which the equipment for games which is the target of this invention processes was acquired with the pachinko game machine but the game result value acquired with a coin game machine or the game machine of others, such as a slot machine, is included. That is, if this invention is equipment for games which can define rates of premium exchange, such as a cashing rate, to the game result value which became a game person's possession as a result of the game in a game machine, it is applicable to all the equipment for games. Here, the rate of premium exchange is a concept containing the rate of general premium exchange in the case of exchanging the cashing rate and ball in the case of meaning the replacement factor in the case of exchanging the game result value used as a game person's possession for a premium, and exchanging a ball for the amount of money as a premium for a common premium. Therefore, the handling of the cashing rate shown below is explained as an example of representation of the rate of premium exchange also containing the rate of general premium exchange.

[0014]1st embodiment drawing 1 is a front view of the game machine install island 1 in which the pinball machine (only henceforth a game machine) 6 was formed. Only the part is illustrated on account of space.

[0015]Two or more game machines 6 are arranged in parallel and installed in the game machine install island 1.

Between each game machine 6, the ball return equipment 3 and the card unit 4 corresponding to each game machine 6 are provided.

Corresponding to each game machine 6, the call and the issuing device 2 are formed in the top decorative sheet 1b located in the end rail 1a lower part of the game machine install island 1. Corresponding to each game machine 6, the member card reader 8 is formed in the side of the call and the issuing device 2.

Between each game machine 6 and the lower decorative sheet 1c, the ball tray 5 for a game person to collect temporarily the pachinko ball which is the game result value acquired by the game, collect by a game person's operation, and calculate the number is formed corresponding to each game machine 6.

[0016]The game machine 6 is a pachinko game machine with which a game is performed using a pachinko ball, for example. The pachinko ball which is needed when starting a game is lent out by inserting a national common card (henceforth a common card) in the card slot 4a of the card unit 4, and performing predetermined ball lending operation. That is, draw down of the card balance of specified amount is carried out from the common card inserted in the card slot 4a according to a game person's ball lending operation, and a number equivalent to the draw-down balance of pachinko balls are lent out to the top plate 6b from the awarded-balls ball lending machine (not shown) with which the game machine 6 was equipped. If the hit ball operation handle 6d is operated in the state where a pachinko ball exists in the top plate 6b, the pachinko ball of one shot will be from-cartridge-discharged at a time by the game area 6a.

[0017]The member card reader 8 is equipment which reads information from the membership card published by the member of an amusement center. When a member performs a game, he inserts a membership card in the member card reader 8. When a membership card is inserted in the member card reader 8, a member's game person can acquire the predetermined privilege of Hitoshi Kougami of the cashing rate of a pachinko ball.

[0018]Although the detailed graphic display is omitted in drawing 1, the prize port etc. of what is called a variable display device with which the variable display of two or more kinds of patterns is performed, variable winning ball equipment, and others are provided in the game area 6a. For example, based on the hit ball driven into the game area 6a winning a prize of a predetermined start prize port, a derivation indication of the variable display result of a variable display device is given. And if a derivation indication of the combination (for example, 777 etc.) of the big hit pattern beforehand defined with the variable display device is given, the great success control with possible great success occurring and making a hit ball win a prize of variable winning ball equipment will be started. When great success occurs in the probability-changing figure defined also especially in the big hit pattern, probability changing (probability variation) to which great success probability becomes high occurs after that. After that, this probability changing is continued, for example until great success occurs twice at least, and great success probability returns to the usual thing after the 2nd end of great success control.

[0019]If a pachinko ball wins a prize of the prize port of variable winning ball equipment or others, the prize ball of a predetermined number will pay out the top plate 6b of the game machine 6. ** ON of the pachinko ball which overflows the top plate 6b is automatically carried out to the lower dish 6c. The lower dish **** lever 60 for making the lower dish 6c move a pachinko ball to the ball tray 5 is formed. When a game person does sliding operation of the lower dish **** lever 60 if needed, the pachinko ball currently stored by the lower dish 6c is guided to the ball tray 5.

[0020]The ball tray 5 is for keeping temporarily the pachinko ball which the game person gained.

It has a reservoir space in which more balls can be made to store as compared with the top plate 6b or the lower dish 6c.

The ball tray 5 is open for free passage with the ball recovering spout provided in the rear-face side of the lower decorative sheet 1c inside the game machine install island 1.

a ball -- calculation -- the pachinko balls in the ball tray 5 are collected by the ball recovering spout by carrying out sliding operation of the lever 5a.

The collected pachinko ball is calculated inside, and the enumerated data are accumulated and displayed on the balls number display 5b of the ball tray 5 as a gained point. The balls number display 5b is the dot-matrix display for indication which comprised LED, for example.

[0021]When a pachinko ball runs short in a game, it is necessary to perform ball lending operation again and to supplement the top plate 6b with a ball on hire. However, when the game person owns the gained point, it is also possible to pull down this gained point and to receive return of a pachinko ball from the ball return port 3a. The ball returning switch 3b for receiving return of a pachinko ball by making a gained point into draw down is formed in the ball return equipment 3.

When a game person operates this ball returning switch 3b, draw down of the gained point is carried out, and a pachinko ball is supplied to the top plate 6b from the ball return port 3a.

3c is an automatic returning switch. If pressing operation of this automatic returning switch 3c is carried out, on condition that it becomes automatic ball returning mode and a fixed quantity of reservoir balls of the top plate 6b become the following, draw-down processing of a gained point will be performed automatically, and a pachinko ball will be supplied to the top plate 6b from the ball return port 3a.

Automatic ball returning mode is canceled by carrying out pressing operation of the automatic returning switch 3c again.

[0022]What is necessary is just to carry out pressing operation of the reward-balls card issuing switch 2c of a call and the issuing device 2, in order to pay eventually the gained point currently displayed on the balls number display 5b. By carrying out pressing operation of the reward-balls card issuing switch 2c, the reward-balls card with which the information that the gained point currently displayed on the balls number display 5b could be specified was recorded is published from reward-balls card issuing port 2b. For example, the game person can obtain a desired premium to the gained point and exchange which are recorded on the reward-balls card by handing a reward-balls card to an official in charge in the service counter of an amusement center. the case where a **** ball and other abnormalities have generated 2a with the game machine 6 and unjust calculation -- it is a calling-indicator part for blinking, when operation may be performed, and reporting that to the official in charge of an amusement center.

[0023]When calling it "record" in this embodiment, a concept including both the record in the case of making a memory etc. memorize information and the record in the case of printing information on paper etc. is meant.

[0024]By the way, since a lot of pachinko balls may pay out a game person during a great success control period at a general game place, What is called an own-balls game that continues and uses the pachinko ball which great success control was performed and paid out of the purpose of controlling the speculation nature of a game for the game after the end of great success control may be restricted.

[0025]In this embodiment, this own-balls game as a system (own-balls game system) to restrict for example, The 1-time exchange system which imposes a duty of settlement of accounts of a pachinko ball upon a game person whenever great success control is completed once, The probability-changing lucky system which an own-balls game is permitted during the period which probability changing (probability variation) has produced with the game machine 6, and imposes a duty of settlement of accounts of a pachinko ball after the end of probability changing, The lucky number system which imposes a duty of settlement of accounts of a pachinko ball after the end of great success when great success occurs by the unlucky number which permitted the own-balls game and was beforehand defined when great success occurred in the lucky number (a probability-changing figure is included) defined beforehand, It is selectable in either among the unrestricted systems which permit an own-balls game indefinitely by selection setting operation of the set part 11 (refer to drawing 3).

[0026] And if great success control is completed and the own-balls game completion conditions according to an own-balls game system are satisfied, a close command signal will be inputted into the predetermined input terminal (graphic display abbreviation) provided in the game machine 6. If a close command signal is inputted into an input terminal, the hit ball motor (drive motor) or hit ball solenoid which drives the hit ball operation handle of the game machine 6 will be stopped, and the game machine 6 will be in a game impossible moving state. And information to which settlement of accounts of a pachinko ball is urged from the speaker 7 is performed. a game person responds to this -- a ball -- calculation -- the lever 5a is operated, counting processing of a pachinko ball is performed, further, if the gained point is published as a reward-balls card by the pressing operation of the reward-balls card issuing switch 2c, it will become again effective operating it of the hit ball operation handle 6d, and a game impossible moving state will be canceled. The game person who wants to continue a game with the same game machine 6 will do draw down of the new card balance, for example from a common card, and will perform ball lending operation. in addition -- responding to the information from the speaker 7 -- a ball -- calculation, when the lever 5a is operated and counting processing of a pachinko ball is performed, Irrespective of the existence of the pressing operation of the reward-balls card issuing switch 2c, it may constitute so that the reward-balls card with which the information that a gained point could be specified was recorded may be published from reward-balls card issuing port 2b.

[0027] Thus, since according to this embodiment it will be controlled to be unable to continue a game unless a pachinko ball is paid if own-balls game completion conditions are satisfied, a game person can be made to carry out certainly the game rule beforehand defined by the amusement center side. The time and effort which checks the game machine with which the official in charge of the amusement center, etc. patrolled the inside of an amusement center, and own-balls game completion conditions are satisfied, or checks [whether there are those who disregard a game rule and perform a game, and] by this can be saved.

[0028] In order to prevent him from a game person feeding into the ball tray 5 the pachinko ball transferred by others and the pachinko ball owned with other game machines, and calculating it in this embodiment. The number of pachinko balls (the number of pachinko balls which is not calculated) considered that the game person owns as a result of the game in the game machine 6 in the ball tray 5, the top plate 6b, the lower dish 6c, etc. is computed, finishing [a game person / calculation of all the pachinko balls (henceforth own balls) owned as a result of the game] -- it is -- the case where it can judge -- a ball -- calculation -- it is constituted so that sliding operation of the lever 5a may be formed into un-activity.

[0029] Thereby, the pachinko ball in which cashing rates differ can prevent being carried in and calculated from other game machines, game machine install islands, etc., for example. The pachinko ball carried in unjustly can also prevent the inconvenience calculated, without performing a game.

[0030] Drawing 2 is an important section sectional view for explaining the relation of the game machine 6 and the ball tray 5 which were installed in the game machine install island 1. The game machine 6 is being fixed by the game machine install island 1 and the game stand supporter 1e. The ball tray 5 is being fixed to the game machine install island 1 with the lock-pin 54 via the ball tray fitting part 1d.

[0031] The top plate ball passage part 63 for showing the pachinko ball supplied from the ball return port 3a to a hit ball shooting position is formed in the top plate 6b. The top plate ball passage part 63 inclines gently, in order to lead a pachinko ball to a hit ball shooting position.

The top plate ball detectors 64 are formed in the lowermost end position.

Besides, the pan ball detectors 64 are used in order to detect whether the pachinko ball remains in the top plate ball passage part 63.

[0032] The lower dish ball storing section 61 for storing temporarily the foul ball which arrived even at neither the pachinko ball overflowed from the top plate 6b nor the game area 6a is formed in the lower dish 6c. Under the lower dish ball storing section 61, the opening for showing the pachinko ball in the lower dish ball storing section 61 to the ball tray 5 is provided.

This opening is blockaded by the lower dish **** lever 60 and the piece of deterrence formed in one. And by carrying out sliding operation of the lower dish **** lever 60, this blockade is solved and the pachinko ball in the lower dish ball storing section 61 carries out ** ON to the ball tray 5. 62 is the lower dish ball detectors for detecting the pachinko ball which remains to the lower dish ball storing section 61.

[0033] The ball tray part 50 for storing the pachinko ball which carried out ** ON from the lower dish 6c is formed in the ball tray 5. the flank lower part of the ball tray part 50 -- calculation -- the lever 5a and the opening blockaded by the piece of deterrence formed in one are provided. and calculation -- by carrying out sliding operation of the lever 5a, the blockade of an opening is solved and the reservoir ball in the ball tray part 50 is guided from an opening in the rectification passage 55. The pachinko ball guided in the

rectification passage 55 aligns by the rectification rail 51, and is guided along the inclination of the rectification passage 55 at game machine install island 1 inside. The pachinko ball guided inside the game machine install island 1 is detected with every one ball counter 52 formed in the rectification passage 55. And it shows around after that at the ball recovering spout (graphic display abbreviation) of game machine install island 1 inside.

[0034]5 d -- calculation -- the calculation for forbidding the sliding operation of the lever 5a -- it is a prohibition part. calculation -- the prohibition part 5d comprises a solenoid, for example, and -- the axis currently attracted inside the solenoid by the solenoid 5d concerned being demagnetized projects to the solenoid exterior -- calculation -- the lever 5a is fixed, thereby -- calculation -- the sliding operation of the lever 5a is forbidden. on the other hand, an axis is attracted inside by the solenoid 5d concerned being magnetized -- calculation -- the sliding operation of the lever 5a is permitted.

[0035]Drawing 3 is a system block figure of the game machine install island 1. By the management computer 200 which is a management computer for holes, the variety of information in an amusement center is managed. A call and the issuing device 2, and the ball tray 5 are controlled in the game machine install island 1, and the control device 10 which performs close control of the game machine 6 further is formed in it. 11 is a set part for setting up the control action of the control device 10. In this embodiment, the control device 10 is individually formed corresponding to each game machine 6. The set part 11 is formed every control device 10.

[0036]In the set part 11, the own-balls game system of the game machine 6 controlled by operation by the official in charge of an amusement center, for example with the control device 10 can be set up. For example, when the official in charge of an amusement center, etc. choose a desired preset value out of the preset value beforehand registered into the set part 11, an own-balls game system can be set to unrestricted 1-time exchange system, a probability-changing lucky system, a lucky number system, or a system. In the set part 11, it is also possible to carry out change setting out of the setting detail of the cashing rate of the pachinko ball determined that it will mention later.

[0037]Digital information is outputted to the control device 10 from the ball counter 52. The control device 10 computes a gained point by counting this digital information. And this gained point is memorized as enumerated data by control device 10 inside. They are used for judging whether the game person is performing the game according to the own-balls game system while being used, since the number of reward balls which should be recorded on a reward-balls card is specified these enumerated data.

[0038]Ball tray detection information is inputted into the control device 10 from the microcomputer 5c for control of the ball tray 5. The control device 10 grasps whether the pachinko ball remains in the ball tray 5 using this detection information. On the other hand, LED information is outputted to the microcomputer 5c for control of the ball tray 5 from the control device 10. LED information is information for control for displaying on the balls number display 5b the number of pachinko balls collected and calculated from the ball tray 5.

[0039]Various game information and top plate detection information and lower dish detection information are outputted to the control device 10 from the game machine 6, respectively. Especially the game information to illustrate is outputted from the game control board (graphic display abbreviation) of the game machine 6. Varieties of information, such as probability-changing information which shows generating and the end of great success information and probability changing which show generating of great success and the end of great success control, are included in the game information outputted from a game control board. The control device 10 grasps the game position of the game machine 6 by game information, such as these great success information and probability-changing information.

[0040]The expenditure ball detection information used as an example of game information is outputted to the control device 10 from the expenditure ball detectors 12. The expenditure ball detectors 12 detect the pachinko ball paid out to the game person. The expenditure ball detectors 12 are formed in the awarded-balls ball lending machine (graphic display abbreviation) of the game machine 6.

It is constituted so that expenditure ball detection information may be outputted to the control device 10 only in the case of awarded balls.

[0041]The placing ball detection information used as an example of game information is outputted to the control device 10 from the placing ball detectors 13. The placing ball detectors 13 detect the pachinko ball driven into the game area 6a of the game machine 6. The placing ball detectors 13 are formed between the ball discharge gutter (graphic display abbreviation) of the game machine 6, and the ball recovering spout (graphic display abbreviation) of the game machine install island 1, for example.

[0042]The number of the pachinko balls which the control device 10 started the count operation of placing ball detection information and expenditure ball detection information based on great success information or probability-changing information having been inputted, for example, and were used for the game with the game machine 6 (placing balls number), The number of the pachinko balls paid to the game person out of the game machine 6 (expenditure balls number) is specified. And a game person calculates the difference number which is the number of own balls owned as a result of the game from this placing balls number and an expenditure balls number.

[0043]Difference number = when there are more difference numbers of expenditure balls number-placing ***** than 0, the game person can judge that the profits by a game have been obtained.

[0044]When some pachinko balls are paid in the middle of a game, the difference number after settlement of accounts is a difference number before the difference number = settlement of accounts after settlement of accounts. - Paid balls number (enumerated data at the time of settlement of accounts)

It becomes. That is, a difference number is the number of pachinko balls which the game person owned as a result of the game by the time settlement of accounts was performed from the start of the game.

[0045]the inside of the own balls which the control device 10 deducted the enumerated data (gained point) memorized inside from this difference number, and the game person owned by the game -- yet -- calculation -- the number of pachinko balls considered with making the ball tray 5, the top plate 6b, the lower dish 6c, etc. store is calculated, without operating it. the convenience top of explanation, and this pachinko ball -- un--- calculation -- it is called a ball.

[0046]calculative -- un--- calculation -- the number = difference number-enumerated data (gained point) of a ball

there are many difference numbers and they are more calculative than zero -- un--- calculation -- when there are more balls than at least 0, the pachinko ball which is the own balls which became a game person's possession as a result of the game, and the game person has not changed into a gained point can judge that it remains in the ball tray 5 etc. then -- in this case -- the control device 10 -- calculation -- permissible information is outputted to the microcomputer 5c for control of the ball tray 5. the microcomputer 5c for control -- calculation -- magnetizing the solenoid 5d based on permissible information being inputted -- a ball -- calculation -- the sliding operation of the lever 5a is permitted. thereby -- a game person -- a ball -- calculation -- it becomes possible to carry out sliding operation of the lever 5a, and to change the pachinko ball in the ball tray 5 into a gained point.

[0047]On the other hand, when a difference number is zero or less, a game person does not get the profits by a game, but can judge that it is not necessary to permit calculation of a pachinko ball. then -- in this case -- the control device 10 -- calculation -- inhibition information is outputted to the microcomputer 5c for control of the ball tray 5. the microcomputer 5c for control -- calculation -- demagnetizing the solenoid 5d based on inhibition information being inputted -- a ball -- calculation -- the sliding operation of the lever 5a is forbidden. The pachinko ball carried in from other stores and the pachinko ball transferred by others are prevented from being calculated by this.

[0048]by the way -- un--- calculation -- it is actually unthinkable that the number of balls becomes less than zero. It is because the pachinko ball of a negative number cannot exist in the ball tray 5 etc. however, enumerated data increase more than a difference number somewhat by existence of a ball on hire etc., and calculative -- un--- calculation -- the number of balls (difference number-enumerated data) may turn into a negative number. furthermore -- this -- calculative -- un--- calculation -- even if the number of balls is a negative number -- actual -- yet -- un--- calculation -- the ball may remain. then, the control device 10 is calculative -- un--- calculation -- being in predetermined tolerance level and permitting calculation, even when the number of balls has become less than zero -- calculation -- permissible information is outputted to the microcomputer 5c for control of the ball tray 5.

[0049]on the other hand, calculative -- un--- calculation -- when the number of balls turns into a negative number which is outside predetermined tolerance level, ball lending operation is performed more than needed, only balls on hire may continue being calculated in large quantities, or a lot of pachinko balls carried in unjustly may be calculated, for example. Although a difference number is not so large, it is because only enumerated data become large unusually.

[0050]So, in such a case, it is regarded as what the injustice of abnormalities or a game person has generated, and error notice information is outputted to it to a call, the issuing device 2, etc. Thereby, error information is performed by a call and the issuing device 2. the control device 10 -- calculation -- outputting inhibition information to the microcomputer 5c for control of the ball tray 5 -- calculation -- operation is forbidden.

[0051]while great success information or probability-changing information is inputted into the control

device 10 -- irrespective of the size situation of a difference number -- calculation -- permissible information is outputted to the microcomputer 5c for control of the ball tray 5. the microcomputer 5c for control -- calculation -- being based on permissible information being inputted -- a ball -- calculation -- the sliding operation of the lever 5a is permitted. thereby -- a game person -- a ball -- calculation -- it becomes possible to carry out sliding operation of the lever 5a, and to change the pachinko ball in the ball tray 5 into a gained point. a while great success information or probability-changing information is inputted ball -- calculation -- the sliding operation of the lever 5a is permitted because it is expected that a lot of pachinko balls pay out a game person in an advantageous game position for game persons, such as a great success period and a probability-changing period.

[0052]Operation information is inputted into the control device 10 from a call and the issuing device 2. Operation information is information outputted based on the pressing operation of the reward-balls card issuing switch 2c. The control device 10 computes the number of reward balls and cashing rate which should be given to a game person based on the input of operation information, includes this in card R/W control information, and outputs it to a call and the issuing device 2. A call and the issuing device 2 publish a reward-balls card from the reward-balls card issuing port 2c based on the input of this card R/W control information. If a reward-balls card is published, that will be outputted to the control device 10 from a call and the issuing device 2 as card R/W information. This grasps that the issue processing of the reward-balls card was completed and settlement of accounts ended the control device 10. and -- the case where a game person can judge that settlement of accounts of all the own balls is ended -- calculation -- inhibition information is outputted to the microcomputer 5c for control of the ball tray 5. The pachinko ball transferred by others, the pachinko ball owned with other game machines, or the pachinko ball carried in unjustly can be prevented from being calculated by this with the game machine 6 with which the game was ended.

[0053]Top plate detection information is information outputted from the top plate ball detectors 64 formed in the top plate 6b. Lower dish detection information is information outputted from the lower dish ball detectors 62 formed in the lower dish 6c. The control device 10 grasps whether the pachinko ball remains in the top plate 6b or the lower dish 6c using these detection information.

[0054]The information read from membership cards, such as a membership number, is inputted into the control device 10 from the member card reader 8. A membership number is a member's serial number. While each membership card memorizes, the management computer 200 also memorizes.

The management computer 200 manages a member's personal information mainly based on a membership number.

[0055]The control device 10 supervises the game position of the game machine 6 by the various game information inputted from the game machine 6, performs control according to the own-balls game system set up, and judges whether it is what should permit an own-balls game. And if it will be in the state where an own-balls game should be forbidden by the end of great success control, etc., a close command signal will be outputted to the game machine 6. The input terminal (graphic display abbreviation) for inputting a close command signal into the game machine 6 is provided. If a close command signal is inputted into an input terminal, the drive of the drive motor which drives the hit ball operation handle of the game machine 6 will be suspended, and the game machine 6 will be in a game impossible moving state. If a close command signal is inputted, the relay which turns on and off the electric power supply of a drive motor which drives a hit ball operation handle will act, and, specifically, supply of electric power will be turned OFF. Thereby, a drive motor stops. Furthermore, the control device 10 outputs an audio signal to the speaker 7. Thereby, from the speaker 7, if a pachinko ball is not paid, the informing sound of the purport that it cannot continue a game is ****(ed). a game person responds to this information -- a ball -- calculation -- if the lever 5a etc. are operated and adjustment processing of a pachinko ball is performed, card R/W control information will be outputted to a call and the issuing device 2 from the control device 10, a reward-balls card will be published from reward-balls issuing port 2b of a call and the issuing device 2, and adjustment processing will be completed. By receiving card R/W information from a call and the issuing device 2, the control device 10 grasps that and suspends the output of a close command signal. The drive of the drive motor which drives the hit ball operation handle of the game machine 6 is attained by this, and a game impossible moving state is canceled. The drive of a drive motor is attained by an above-mentioned relay acting and specifically turning ON supply of electric power.

[0056]The control device 10 transmits the matching request information which requires collation of membership information to the management computer 200, in order that the game person who is using the membership card based on the membership information inputted from the member card reader 8 may judge whether you are the member. Membership information, such as a membership number which is the

information which shows that it asks for collation of membership information, and the target of collation, is included in the matching request information. The operating state information which shows the operating state of the member card reader 8 is given to the control device 10 from the member card reader 8. Based on this operating state information, the control device 10 can distinguish whether the membership card is inserted in the member card reader 8. The control device 10 transmits member use information, when the membership card is inserted in the member card reader 8. The information the information and member of a membership number who specify a member indicate it to be to carry out the present game machine 6 is included in the member use information.

[0057]In the management computer 200, when matching request information is received, the membership information of a collation object and the membership information managed in the management computer 200 are compared, and the collation result information which shows the matching result is replied to the control device 10. And in the control device 10, based on the matching result which collation result information shows, it compares whether a game person is the member and control information is inputted into the member card reader 8 from the control device 10. The motion-control information for controlling the reading operation of the information in the member card reader 8 is included in this control information. In the management computer 200, based on member use information, accumulation memory of the game time which is a hour of use of the game machine for every member is carried out, and a member's various personal information, such as managing a member's Assessment on Search Report by Designated Searching Authority in quest of [whole member] the game time for the past two months, is managed.

[0058]Ball returning switch information and mode changed information are outputted to the control device 10 from the ball return equipment 3. Ball returning switch information is information outputted based on the pressing operation of the ball returning switch 3b.

Mode changed information is information outputted based on the pressing operation of the automatic returning switch 3c.

The control device 10 outputs the ball return command which pulls down a specified value from a gained point based on the input of ball returning switch information on condition that a gained point exists, and becomes the ball return equipment 3 with an example of ball return device control information. The ball return equipment 3 returns the pachinko ball of a prescribed number to the top plate 6b from the ball return port 3a based on this ball return command. The control device 10 changes the ball returning mode of the ball return equipment 3 into automatic ball returning mode by turns from automatic ball returning mode from a manual mode to a manual mode again based on the input of mode changed information. the case where ball returning mode is automatic ball returning mode -- both ball tray detection information top plate detection information and lower dish detection information -- although -- on condition that it is not inputted into the control device 10, a ball return command is automatically outputted to the ball return equipment 3.

[0059]The control device 10 outputs the ball return prohibition command used as an example of ball return device control information to the ball return equipment 3, when a close command signal is being outputted. Thereby, with the ball return equipment 3, the return operation of a ball is forbidden during the close.

[0060]Ball plugging and the game information showing the abnormal occurrence of the other game machines 6 are outputted to a call and the issuing device 2 from the game machine 6. A call and the issuing device 2 embrace this information kind, and turns on or blinks the calling-indicator part 2a.

[0061]Drawing 4 is a block diagram of the control device 10. ROM104, the expenditure ball counter 103a, the placing ball counter 103b with which the control program 104a was memorized as for the control device 10, RAM various counters for an operation, such as the enumerated-data counter 103c and the difference number counter 103d, were remembered to be, It comprises CPU100 which performs various data processing, the input port 101 which inputs a variety of information, the output port 102 which outputs a variety of information, LED circuit 106, the electronic speech circuit 105, etc.

[0062]CPU100 performs the following processings according to the control program 104a memorized by ROM104 according to the variety of information inputted into the input port 101.

[0063]It grasps that great success control began by the input of great success information, and grasps that great success control was completed by the input stoppage of great success information. It grasps that probability changing began by the input of probability-changing information, and grasps that probability changing was completed by the input stoppage of probability-changing information.

[0064]It is grasped whether based on the existence of the input of top plate detection information, the pachinko ball remains in the top plate 6b. It is grasped whether based on the existence of the input of lower dish detection information, the pachinko ball remains in the lower dish 6c. It is grasped whether based on the existence of the input of ball tray detection information, the pachinko ball remains in the ball

tray 5.

[0065]While carrying out the addition update of the counter value of the enumerated-data counter 103c according to the input of digital information, the LED information for making it display on the balls number display 5b of the ball tray 5 by making the counter value into a gained point is outputted via the output port 102 from a LED circuit. When great success information and probability-changing information are inputted into the input port 101, Or when there are more difference numbers than 0, according to the input of placing ball detection information, renewal of subtraction of the counter value of the placing ball counter 103b is carried out, and the addition update of the counter value of the expenditure ball counter 103a is carried out according to the input of expenditure ball detection information. And the counter value of the placing ball counter 103b is subtracted from the counter value of the expenditure ball counter 103a, and the value is memorized as a counter value of the difference number counter 103d.

[0066]According to the information inputted based on the operation switch (reward-balls card issuing switch) 2c having been operated, card R/W processing is performed for the adjustment processing based on the counter value of the enumerated-data counter 103c. Namely, after outputting card R/W control information including the counter value and cashing rate of the enumerated-data counter 103c from the output port 102 to a call and the issuing device 2, The value which subtracted the counter value of the enumerated-data counter 103c from the counter value of a difference number counter is memorized as a counter value of a new difference number counter. And the counter value of the enumerated-data counter 103c is reset after that.

[0067]According to the information inputted based on the ball returning switch 3b having been operated, renewal of subtraction of the counter value of the enumerated-data counter 103c is carried out, and ball return device control information is outputted to the ball return equipment 3 from the output port 102.

[0068]Based on the input of card R/W information, the control state of whether the reward-balls card was published normally, and a call and issuing devices 2 is grasped.

[0069]furthermore -- the case where the counter value of the difference number counter 103d is less than zero -- the calculation from the output port 102 -- inhibition information is outputted. deducting the counter value of the enumerated-data counter 103c from the counter value of the difference number counter 103d, when the counter value of the difference number counter 103d is zero or more -- un--- calculation -- a balls number is calculated. and -- un--- calculation -- case it is larger than the predetermined acceptable value (it is -100 at a predetermined negative number) which the balls number mentioned above -- calculation -- permissible information -- the case of less than said predetermined acceptable value -- calculation -- inhibition information is outputted from the output port 102, respectively. while great success information or probability-changing information is inputted into the input port 101 -- unconditionedness -- calculation -- permissible information is outputted. these calculation -- permissible information or calculation -- the control about the output timing of inhibition information -- calculation -- it performs according to the permission prohibition program 104c. An own-balls game system is grasped based on the setup information inputted into the input port 101. And the hit ball prohibition release program 104b according to the system is executed out of the control program 104a memorized by ROM104. That is, if the own-balls game completion conditions defined according to the own-balls game system are satisfied, a close command signal will be outputted from the output port 102. And it is judged whether most pachinko balls given to the game person as a result of a game are already collected and calculated from the ball tray 5 using the difference number which is a counter value of the difference number counter 103d, and the enumerated data which are counter values of the enumerated-data counter 103c. More specifically, it is judged whether the relation of "enumerated-data \geq difference number-20" is materialized, for example. By this judgment, it can be grasped whether the game person is doing settlement-of-accounts operation (ball calculation operation of the lever 5b) according to the game rule. And when the relation of "enumerated-data \geq difference number-20" is materialized, a game person considers that settlement-of-accounts operation is carried out, and the output of a close command signal is suspended. By this, the continuation game in the game machine 6 will be permitted. On the other hand, when the relation of "enumerated-data \geq difference number-20" is not materialized, a game person considers that settlement-of-accounts operation has not been carried out, and outputs a voice information via the output port 102 from the electronic speech circuit 105. Thereby, information to which settlement-of-accounts operation is urged is performed from the speaker 7. If a game person performs settlement-of-accounts operation according to this information, card R/W control information will be outputted from the output port 102. And if it is grasped by the input of card R/W information that the reward-balls card was published with the call and the issuing device 2, it will reset the counter value of the expenditure ball counter 103a, the placing ball counter 103b, and the enumerated-data counter 103c, and will suspend the

output of a close command signal. It was referred to as "enumerated-data \geq difference number-20" here corresponding to change of unexpected difference numbers, like a game person spills reward balls out of a game machine accidentally, or the awarded balls jump out of the top plate 6b at the time of expenditure of awarded balls in a vigor complementary because.

[0070]Even if it is a case where the relation of "enumerated-data \geq difference number-20" is not materialized in the relation between a difference number and enumerated data, Without controlling outputting a voice information etc., when neither of the detection information is inputted among top plate detection information, lower dish detection information, and ball tray detection information, the output of a close command signal is suspended and a game is permitted. Although a game person may separate from the game machine 6 in the middle of a game and may exchange reward balls for predetermined premiums (for example, tobacco etc.) etc. at the automatic vending machine which can purchase predetermined goods with a pachinko ball, or the premium counter in a game store, In this case, when it is only seeing the relation between a difference number and enumerated data, and suspending the output of a close command signal, it is for the inconvenience that a close state will continue to occur, although the game person is sampling and doing premium exchange of the pachinko ball and a pachinko ball does not exist in the game machine 6 or the ball tray 5.

[0071]When it judges whether the membership card is used based on the performance information of the member card reader 8 inputted into the input port 101 and the membership card is used, member use information is outputted from the output port 102. Based on the performance information of the member card reader 8 inputted into the input port 101, it is judged whether the game person is using the membership card. In order that a game person may judge whether you are the true member based on the membership information inputted into the input port 101, the matching request information which requires collation of membership information is outputted from the output port 102. When the collation result information which answers the outputted matching request information is inputted into the input port 101, based on collation result information, a game person judges whether you are the true member. And it is judged to any of the case where the true member is performing the game, and the case where a game person is judged not to be the true member when the game person is not using the membership card it corresponds. When the true member is performing the game, the cashing rate of a pachinko ball is determined as the 1st conversion rate for members, On the other hand, when the game person is not using the membership card, or when a game person is judged not to be the true member, the cashing rate of a pachinko ball is determined as the 2nd conversion rate lower than the 1st conversion rate for nonmembers. And with the information on the enumerated data of a pachinko ball, the information about the determined cashing rate is included in card R/W control information, and is outputted from the output port 102. Since it may change with amusement centers, such a cashing rate can be easily changed by carrying out setting operation by the set part 11 according to the management policy of an amusement center.

[0072]Drawing 5 - drawing 11 are the flow charts for explaining the various control contents performed by CPU100 of the control device 10. The control program based on the flow chart explained below is memorized as the control program 104a (refer to drawing 4) in ROM104 of the control device 10.

[0073]First, drawing 5 (a) is a flow chart for explaining the procedure of a main process. First, a port input process is performed in S1. A port input process is processing which inputs a variety of information from the input port 101 (refer to drawing 4).

[0074]Next, count processing is performed in S2. This count processing is processing for calculating an expenditure ball and a placing ball. For details, it mentions later by drawing 6 (a).

[0075]Next, it progresses to S3 and card R/W processing is performed. Card R/W processing is processing for outputting card R/W control information to a call and the issuing device 2 based on the operation information inputted from the call and the issuing device 2 (refer to drawing 3). By performing this processing, a reward-balls card is published from reward-balls card issuing port 2b of a call and the issuing device 2. For details, it mentions later by drawing 11. The counter value of the enumerated-data counter 103c (refer to drawing 4) is reset by 0 after issue of a reward-balls card.

[0076]Next, it progresses to S4 and ball return processing is performed. Ball return processing is processing for carrying out draw down of the enumerated data currently displayed on the balls number display 5b of the ball tray 5, and making the top plate 6b return a pachinko ball from the ball return port 3a. For details, it mentions later by drawing 8.

[0077]Next, it progresses to S5 and close prohibition / release processing is performed. Close prohibition / release processing is processing for making the state cancel while changing the game machine 6 into a close state. For details, it mentions later by drawing 5 (b). next -- progressing to S6 -- calculation -- permission and a prohibition process are performed. calculation -- permission and a prohibition process

respond to a game situation -- calculation -- permissible information or calculation -- it is the processing which performs judgment whether inhibition information is outputted etc. the control program about this processing -- the inside of ROM104 of the control device 10 -- calculation -- it memorizes as the permission prohibition program 104c (refer to drawing 4). calculation -- the details of permission and a prohibition process are later mentioned by drawing 9.

[0078]Next, it progresses to S7 and counting processing is performed. counting processing -- the ball of the ball tray 5 -- calculation -- the lever 5a is the processing which calculates the number of pachinko balls which sliding operation was carried out and were collected. This processing is performed based on the detect output of the ball counter 52 (refer to drawing 2) formed in the rectification passage 55 (refer to drawing 2).

[0079]Next, it progresses to S8 and membership card processing is performed. Membership card processing is processing for transmitting the motion control and the member use information on the member card reader 8. In membership card processing, if a membership card is inserted in the member card reader 8, control which performs operation for reading memory information, including a membership number etc., from a membership card will be performed, and control which performs operation which makes a membership card discharge at the time of the settlement of accounts in the case of game completion will be performed. In membership card processing, when the membership card is inserted in the member card reader 8, processing which turns to the management computer 200 the member use information mentioned above, and transmits is performed.

[0080]Next, it progresses to S9 and cashing rate setting processing is performed. Cashing rate setting processing is processing which determines a cashing rate according to whether the game person who is using the game machine 6 is the member, or you are a nonmember. For details, it mentions later by drawing 10.

[0081]After cashing rate setting processing is completed by S9, all the processings are completed. Drawing 5 (b) is a flow chart for explaining the procedure of close prohibition / release processing. First, each counter is checked in S51. Next, it progresses to S53 and it is judged whether a difference number is 0. Specifically, it is judged whether the counter value of the difference number counter 103d is 0. Processing is completed when a difference number is 0. On the other hand, when a difference number is not 0, it progresses to S54.

[0082]The processing load of setting out is performed in S54. The processing load of setting out is processing which reads the setup information set up by the set part 11 (refer to drawing 3). Next, processing branches according to the contents of the setup information read by progressing to S55. That is, when a preset value is "1", it progresses to S56 and the message exchange is performed once. That is, an own-balls game system will be set once as exchange system by setting a preset value as "1" by the set part 11. The procedure of the message exchange is later mentioned once by drawing 6 (b). When a preset value is "2", processing progresses to S57 and probability-changing lucky processing is performed. That is, an own-balls game system will be set as a probability-changing lucky system by setting a preset value as "2" by the set part 11. The procedure of probability-changing lucky processing is later mentioned by drawing 7. Processing is completed when a preset value is "3." That is, an own-balls game system will be set as an unrestricted system by setting a preset value as "3" by the set part 11. Although an own-balls game system is set as a lucky number system by setting a preset value as "4" by the set part 11, detailed explanation of the procedure is omitted here.

[0083]Drawing 6 (a) is a flow chart for explaining the procedure of count processing. First, in S20, it is judged whether either great success or probability changing has a game position of the game machine 6. When a game position corresponds to neither, it progresses to S26 mentioned later.

[0084]On the other hand, when a game position is among great success or probability changing, it progresses to S21, and it is judged whether expenditure ball detection information is inputted. When expenditure ball detection information is inputted, it progresses to S23 and the counter value of the expenditure ball counter 103a is updated (+1). And it progresses to S22. On the other hand, when expenditure ball detection information is not inputted by S21, it progresses to S22 as it is.

[0085]It is judged in S22 whether placing ball detection information is inputted. Processing is completed when placing ball detection information is not inputted. On the other hand, when placing ball detection information is inputted, it progresses to S24. In S24, the counter value of the placing ball counter 103b is updated (+1). And it progresses to S25.

[0086]In S25, difference number operation and memory processing are performed. A difference number calculates by performing difference number operation and memory processing. That is, the value which subtracted the counter value of the placing ball counter 103b from the counter value of the expenditure

ball counter 103a is memorized as a counter value which is the difference number counter 103d. And the post-processing is completed.

[0087]On the other hand, when judgment of NO is made by S20, processing shifts to S26. In S26, judgment whether a difference number is larger than zero is made. A difference number is computed by subtracting the counter value of the enumerated-data counter 103c from the counter value of the difference number counter 103d. And when a difference number is larger than 0, it progresses after said S21, and according to the input of expenditure ball detection information or placing ball detection information, the counter value of the expenditure ball counter 103a or the placing ball counter 103b is updated (+1). There is that a difference number becomes larger than 0 actually, after a game begins, and great success and probability changing occur. Generally it is because the game machine is adjusted so that profits may not appear in a game person before generating of great success etc. Therefore, judgment of YES will be made by S26 for the first time on the assumption that great success and probability changing have already occurred.

[0088]On the other hand, when a difference number is judged to be less than zero by S26, without performing, it progresses to said S25, difference number operation and memory processing are performed, and processing ends said each processing from S21 to said S24 after that.

[0089]According to this procedure, that the count (S21, S24) of a placing ball or an expenditure ball is performed in the case (S20) in generating of great success, or probability changing. Or it becomes the great success and generating back (after great success or generating of probability changing, since difference number >0 is generally materialized, judgment of YES is made by S26) of probability changing. That is, the count (S21, S24) of a placing ball or an expenditure ball is performed for the first time after great success or generating of a game position advantageous to a game person called probability changing. In other words, the count (S21, S24) of a placing ball or an expenditure ball is not performed before great success or generating of probability changing. The Reason is as follows.

[0090]Since the game machine is adjusted so that profits may not appear in a game person, if a difference number is calculated by the meantime, it will become a negative number before great success or generating of probability changing, as mentioned above. It is for a placing balls number to increase more than an expenditure balls number. By the way, even if a difference number is in the state of becoming a negative number, the game person can newly continue a ball for ***** on hire by ball lending operation. Therefore, unless it is generated by many premium balls and an expenditure balls number increases into a game, a difference number becomes large rapidly to a negative direction with the increase in a placing balls number.

[0091]As a result of computing a difference number by having performed the count (S21, S24) of a placing ball or an expenditure ball before great success or generating of probability changing here, the situation where the game person's difference number is -5000 is considered. The maximum of the number of pachinko balls paid out by generating of one great success is assumed to be 2400 pieces.

[0092]Though great success will occur under this situation and a game person will own the pachinko ball which is about 2400 pieces in the ball tray 5, it is possible that the difference number is not still a positive number. the case where the difference number of the control device 10 is zero or less as mentioned above -- calculation -- it is constituted so that operation may be forbidden. therefore -- even if it is a case where a game person desires calculation of a pachinko ball, since it is difference number ≤ 0 , a game person considers that the control device 10 does not own own balls -- a game person -- calculation of a pachinko ball -- it will be judged that it is not necessary to permit operation. for this reason, a ball -- calculation -- the inconvenience of the sliding operation of the lever 5a being forbidden and it becoming impossible to calculate a pachinko ball occurs.

[0093]The result of having computed the difference number by having performed the count (S21, S24) of a placing ball or an expenditure ball before great success or generating of probability changing, even if 2 times, 3 times, and great success occur continuously after that as a difference number becomes large rapidly to a negative direction -- a ball -- calculation -- it is also considered that the sliding operation of the lever 5a will be forbidden, and the pachinko ball stored by the ball tray 5 also produces a possibility of overflowing outside in a game.

[0094]Thus, a possibility that a difference number will turn into a negative number if the count (S21, S24) of a placing ball or an expenditure ball is performed before great success or generating of probability changing is very high, and if a difference number turns into a negative number, the inconvenience on employment to permission-or-denial judgment of calculation by the control device 10 will arise.

[0095]So, in this count processing in the case in generating of great success, or probability changing. Or the count of a placing ball or an expenditure ball is performed only after great success or generating of probability changing, and neither a placing ball nor an expenditure ball counts in the game position of great

success and generating before of probability changing from which a difference number may turn into a negative number. A difference number can be prevented from turning into a negative number by this, and said various inconvenience can be prevented from originating in a difference number turning into a negative number, and occurring.

[0096]Drawing 6 (b) is a flow chart for explaining the procedure of the message exchange once. First, in S560, it is judged whether it is at the end time of great success (at the time of the end of great success control). In not being at the end time of great success, it progresses to S562 mentioned later. On the other hand, in being at the end time of great success, it progresses to S561. A close signal (close command signal) is outputted in S561. That is, when an own-balls game system is 1-time exchange system, the own-balls game completion conditions mentioned above will be satisfied by being judged as the time of the end of great success by said S560.

[0097]Next, it progresses to S562 and the enumerated data of the enumerated-data counter 103c (refer to drawing 4) are checked. Next, it progresses to S563 and it is judged whether enumerated data are more than the value which deducted 20 from the difference number. A difference number is the value computed by S25 of drawing 5 (a), and expresses the number of own balls which the game person owns. therefore -- following whether by this step, most own balls of the game person are already collected and calculated from the ball tray 5, and a game rule -- a game person -- calculation -- it is judged whether the lever 5b is operated and settlement-of-accounts operation is carried out. And when the pachinko ball more than the number which deducted 20 from the difference number is calculated, it progresses to S566a and it is judged whether issue of a reward-balls card was ended. Processing is completed when issue of a reward-balls card is not completed. On the other hand, when issue of a reward-balls card is completed, it progresses to S566b. A close signal is stopped in S566b. Thereby, the game impossible moving state of the game machine 6 is canceled. Next, it progresses to S567, the counter value of the expenditure ball counter 103a, the placing ball counter 103b, and the enumerated-data counter 103c is reset, and processing is completed.

[0098]On the other hand, when enumerated data are smaller than the value which deducted 20 from the difference number at S563, it progresses to S564. In S564, it is judged whether one of detection information is inputted among top plate detection information, lower dish detection information, and ball tray detection information. By this, it will be judged whether the pachinko ball remains to the top plate 6b, the lower dish 6c, or a ball tray 5. And when neither of the detection information is inputted, processing shifts to S566a mentioned above. On the other hand, when one of detection information is inputted by S564, it progresses to S565, and an exchange demand voice reporting signal is outputted to the speaker 7. thereby -- the ball from the speaker 7 -- calculation -- the informing sound voice to which operation of the lever 5a is urged is outputted. And processing is completed after that.

[0099]Drawing 7 is a flow chart for explaining the procedure of probability-changing lucky processing. First, in S570, it is judged whether it is the game machine 6 at the end time of great success (at the time of the end of great success control). In not being at the end time of great success, it progresses to S571b mentioned later. On the other hand, in being at the end time of great success, it progresses to S571a.

[0100]It is judged in S571a whether probability-changing information is inputted. That is, it is judged whether the game machine 6 is in a probability-changing state. And in being in a probability-changing state, it completes processing. On the other hand, when it will be in a probability-changing state, it progresses to S572.

[0101]In S571b, it is judged whether either one of great success information or probability-changing information is inputted. When there is no input, it progresses to the below-mentioned S573. On the other hand, this processing is ended when there is an input.

[0102]Close information is outputted in S572. That is, when an own-balls game system is a probability-changing lucky system, the own-balls game completion conditions mentioned above will be satisfied by judging that probability-changing information is inputted by said S571a.

[0103]Next, it progresses to S573 and enumerated data are checked. Next, it progresses to S574 and it is judged whether enumerated data are more than "difference number-20x (number of times of great success generated after probability changing begins before ending)."

[0104]And when the pachinko ball more than "difference number-20x (number of times of great success generated after probability changing begins before ending)" is calculated, it progresses to S577a and it is judged whether issue of a reward-balls card was ended. Processing is completed when issue of a reward-balls card is not completed. On the other hand, when issue of a reward-balls card is completed, it progresses to S577b. A close signal is stopped in S577b. Thereby, the game impossible moving state of the game machine 6 is canceled. Next, it progresses to S578, the counter value of the expenditure ball counter

103a, the placing ball counter 103b, and the enumerated-data counter 103c is reset, and processing is completed.

[0105]On the other hand, when judgment of NO is made by S574, it progresses to S575. In S575, it is judged whether one of detection information is inputted among top plate detection information, lower dish detection information, and ball tray detection information. And when neither of the detection information is inputted, processing shifts to S577a mentioned above. On the other hand, when one of detection information is inputted by S575, it progresses to S576, and an exchange demand voice reporting signal is outputted to the speaker 7. thereby -- the ball from the speaker 7 -- calculation -- the informing sound who urges operation of the lever 5a is outputted. And processing is completed after that.

[0106]Drawing 8 is a flow chart for explaining the procedure of ball return processing. First, in S40, it is judged whether enumerated data are larger than zero, and in not being larger than 0, it completes processing. On the other hand, in being larger than 0, it progresses to S41.

[0107]In S41, it is judged whether pressing operation of the automatic returning switch 3c is carried out, and it is set as automatic ball returning mode. When not set as automatic ball returning mode, it progresses to S43, and it is judged whether pressing operation of the ball returning switch 3b was carried out. Processing is completed when there is no pressing operation. On the other hand, processing is completed, after progressing to S44 and outputting a ball return command to the ball return equipment 3, when pressing operation is carried out. On the other hand, when it is judged that it is automatic ball returning mode in S41, it progresses to S42, and it is judged whether one of detection information is inputted among top plate detection information, lower dish detection information, and ball tray detection information. And when one of detection information is inputted, a game person regards it as that to which an usable pachinko ball exists in a game, and processing is completed. On the other hand, when neither of the detection information is inputted, it is judged that a ball is insufficient and it progresses to S44. And a ball return command is transmitted and processing is completed.

[0108]drawing 9 -- calculation -- it is a flow chart which shows the procedure of permission and a prohibition process. First, in SA1, it is judged whether either great success or probability changing has a game position of the game machine 6. When a game position corresponds to neither, it progresses to SA2, and it is judged whether settlement-of-accounts operation was performed. That is, it is judged whether operation information was inputted from the call and the issuing device 2. Operation information is information outputted based on the pressing operation of the reward-balls card issuing switch 2c.

[0109]When settlement-of-accounts operation is not performed, it progresses to SA8, and it is judged whether a difference number is larger than zero. finishing [of the own balls / some or all / calculation] already when a difference number is larger than 0 -- it is -- it is thought that the game person owns own balls except for *****. So, when a difference number is larger than 0, it progresses to SA12. the value which deducted enumerated data from the difference number in SA12 -- that is, calculative -- un--- calculation -- it is judged whether the number of balls is more than -100. that is, a game person -- un--- calculation -- it is judged whether the ball is still owned. in addition -- this -- calculative -- un--- calculation -- or more [the number of balls does not make it that condition to be one or more but serves as an example of a predetermined acceptable value] 100 [-], the Reason which makes it that condition to be is as having mentioned above. that is, enumerated data increase more than a difference number somewhat by existence of a ball on hire etc., and calculative -- un--- calculation -- the number of balls may turn into a negative number, and is calculative -- un--- calculation -- even if the number of balls is a negative number, the pachinko ball which is a pachinko ball possessed as a result of the game, and is not calculated may still remain. and -- this -- it remains -- un--- calculation -- it is because calculation of a ball is permitted.

[0110]then, calculative at SA12 -- un--- calculation -- the case where the number of balls is judged to be more than -100 -- un--- calculation -- considering that a ball is what the game person owns, and setting it to SA11 -- calculation -- permission processing is performed. calculation -- permission processing is performed -- calculation -- permissible information is outputted to the ball tray 5. thereby -- the ball tray 5 -- a ball -- calculation -- the sliding operation of the lever 5a is permitted. And processing is completed after that.

[0111]on the other hand, calculative at SA12 -- un--- calculation -- when the number of balls is judged to be less than [-100], it is regarded as what abnormal circumstances have generated, and error notice information is outputted to a call, the issuing device 2, etc. in SA13. next -- progressing to SA9 -- calculation -- a prohibition process is performed. calculation -- a prohibition process is performed -- calculation -- inhibition information is outputted to the ball tray 5. thereby -- the ball tray 5 -- a ball -- calculation -- the sliding operation of the lever 5a is forbidden. And processing is completed after that.

[0112]the case where it is judged on the other hand that a difference number is less than zero in SA8 -- un--- calculation -- considering that a ball is what the game person does not own, and progressing to said SA9 -- calculation -- a prohibition process is performed.

[0113]When it is judged that settlement-of-accounts operation is performed by SA2 (i.e., when settlement-of-accounts operation is performed in the state where neither great success nor probability changing has occurred), it progresses to SA3. SA3 -- the absolute value of the difference of a difference number and enumerated data -- that is, calculative -- un--- calculation -- it is judged whether the absolute value of a balls number is 100 or less. And when the absolute value is 100 or less, it considers that the game person paid all the own balls, and he progresses to SA5. In SA5, the counter value of the difference number counter 103d is reset by 0. The Reason for resetting the counter value of the difference number counter 103d is mentioned later. the still more nearly same calculation as said SA9 at SA6 -- a prohibition process is performed.

[0114]SA6 -- calculation -- after a prohibition process is performed, it progresses to SA7 and an enumerated-data write flag is set. An enumerated-data write flag is a flag set in order to make the processing which enumerated data (gained point) are made to record on a reward-balls card activity-ize. By setting this flag, the number of reward balls which should be given to a game person is computed, and card R/W control information is outputted to a call and the issuing device 2. A call and the issuing device 2 publish a reward-balls card from the reward-balls card issuing port 2c based on the input of this card R/W control information.

[0115]On the other hand, when judged as NO by SA3, it considers that the game person paid some pachinko balls owned by the game, and he progresses to SA4. In SA4, enumerated data are deducted from a difference number and the value is set to the difference number counter 103d as a new difference number.

[0116]Next, it progresses to SA14 and it is judged whether the new difference number calculated by SA4 is smaller than 0. When it is smaller than 0, it progresses to SA15 and is newly reset in a difference number 0. It is because it is thought actually that all the own balls are settlement-of-accounts settled that a new difference number becomes smaller than 0 as a result of calculation by SA4.

[0117]Processing is completed, after SA15 and after [when judged as NO by SA14, or] shifting to said SA7 and setting an enumerated-data write flag.

[0118]When the game position of the game machine 6 is judged to be in either great success or probability changing by SA1, it progresses to SA10, and it is judged whether settlement-of-accounts operation was performed. That is, it is judged whether operation information was inputted from the call and the issuing device 2.

[0119]When settlement-of-accounts operation is performed, it progresses to said SA4. the calculation which he followed to said SA11 on the other hand when settlement-of-accounts operation was not performed, and was mentioned above -- permission processing is performed. thereby -- the ball tray 5 -- a ball -- calculation -- the sliding operation of the lever 5a will be permitted. When either great success or probability changing has a game position of the game machine 6, calculation is permitted because with such a game position many pachinko balls pay out a game person and the necessity for calculation arises.

[0120]Here, the Reason for resetting the counter value of the difference number counter 103d to 0 by SA5 is explained. The difference number shows the number of the own balls which the game person owns as it was mentioned above. Therefore, if "difference number-enumerated data" is calculated when a game person finishes calculating all the pachinko balls and does settlement-of-accounts operation, the value should be calculatively set to 0. when the value is not set to 0, a game person is equivalent to the value -- un--- calculation -- it means still owning the ball. being based on processing of SA3 and SA5 being unnecessary, and settlement-of-accounts operation being performed, considering this (SA2) -- SA4 -- un--- calculation -- a ball being calculated and, the case where the result of an operation becomes one or more -- calculation -- the case where perform permission processing and it becomes zero or less -- calculation -- it is thought that what is necessary is just to perform a prohibition process.

[0121]however, calculative -- un--- calculation -- a balls number and the number of pachinko balls which the game person actually owns in the state of un-calculating are not necessarily correctly in agreement. Since a pachinko ball may be sampled from the top plate 6b etc., and it may exchange for premiums, such as a cigarette, or some pachinko balls may fall to the floor in a game, as a game person is a game, As a result of changing the own balls which the game person owns by factors other than a placing ball and an expenditure ball, an error arises between the own balls which the game person owns, and a calculative difference number. and it calculates based on a difference number -- calculative -- un--- calculation -- it is for the error to also influence a balls number (difference number-enumerated data) naturally. in such a

case, calculative, even if a game person calculates all the own balls -- un--- calculation -- a balls number (difference number-enumerated data) is not in agreement with 0 -- for example, -- yet -- un--- calculation -- a value as if the ball existed is taken.

[0122]However, when the following game is actually permitted, without resetting a difference number although it should combine with the processing which sets the enumerated data after settlement of accounts to 0 and the difference number should be further reset to 0 since all the own balls are paid, the error produced by the still more nearly same cause will be accumulated by the difference number. And the error of a actual game person's number of own balls and a difference number will become gradually big as a number of game times increases. For this reason, for example, although the game person does not own own balls, since he is a numerical value with a big difference number, the inconvenience that calculation of the pachinko ball which originally should not be allowed will be permitted generates him.

[0123]Therefore, it is necessary to eliminate this error to a certain timing. However, it is difficult to specify the number of the own balls which the game person actually owns in the middle of a game person's game, and to reset the number to it as a difference number. then, this calculation -- in permission and a prohibition process, the game person is paying all the owned own balls eventually -- I will come out -- the counter value of the difference number counter 103d is reset to 0 to timing, and the error is kept from arising and as that timing, settlement-of-accounts operation is performed in the state where neither great success nor probability changing has occurred (SA1), and calculative [at that time] -- un--- calculation -- the balls number has selected very few (100 or less [That absolute value in this processing / For example, /.]) stages (SA3).

[0124]It is because being carried out on condition that settlement-of-accounts operation was performed in the state where neither great success nor probability changing has occurred here cannot consider that a game person stops a game on the way, and pays all the own balls during great success etc. calculative -- un--- calculation -- it is carried out on condition of [a balls number] few [very] things at the settlement-of-accounts time, and it is still calculative -- un--- calculation -- when a balls number is large (101 or more [For example, this processing]), it is because it is only thought that some pachinko balls which the game person owned by the game were paid. on the other hand, calculative -- un--- calculation -- when there are very few balls numbers, a game person considers that calculate all the hold balls is actually finished at the time, and the difference number is dealt with as an error.

[0125]calculative -- un--- calculation -- carrying out such handling, when there are very few balls numbers, and resetting a difference number (SA5) -- and calculation -- if a prohibition process is carried out (SA6) -- actually -- the -- calculative -- un--- calculation -- the case where the game person holds the pachinko ball about a balls number part poses a problem. However, after a game person leaves a very small number of pachinko balls and finishes settlement of accounts once, it is usually unthinkable to calculate a very small number of pachinko balls which remain anew, and to pay again etc. Therefore, the problem of employment does not arise by performing such processing.

[0126]the above Reason -- this calculation -- in the procedure of permission and a prohibition process, processing which resets the counter value of the difference number counter 103d to 0 by SA5 is performed. As long as it is a numerical value the numerical value of "100" of SA3 is not restricted to this, and it can be considered from the above-mentioned meaning that is the range of with error, the numerical value or the numerical value beyond this not more than this may be sufficient.

[0127]Drawing 10 is a flow chart which shows the procedure of cashing rate setting processing. First, judgment whether a cashing rate is ending with a set is made by S91. When a cashing rate is judged to be ending with a set by S91, this cashing rate setting processing is completed. On the other hand, when a cashing rate is judged not to be ending with a set by S91, it progresses to S92 and judgment whether the membership card is inserted in the member card reader 8 is made.

[0128]Since it is not use of the game machine 6 by a member when it is judged that the membership card is not inserted by S92, the processing which sets a cashing rate to the 2nd cashing rate for nonmembers is made. On the other hand, when it is judged that the membership card is inserted by S92, it progresses to S93 and the processing which reads the membership information read from the membership card is made. Next, it progresses to S94, and in order to compare whether you are the true member based on the membership information read by S93, the processing which transmits matching request information is made. If this matching request information is transmitted, in a management computer, the membership number contained in matching request information and the registered membership number will be compared, and the collation result information which shows that matching result will be transmitted to the control device 10.

[0129]Next, it progresses to S95 and judgment whether the collation result information which answers

matching request information was received is made. In S95, he waits to receive collation result information and follows it to S96. In S96, judgment whether a game person is the member is made based on the received collation result information. When a game person is judged to be the member by S96, it progresses to S97, and after the processing which sets a cashing rate to the 1st cashing rate for members is made, this cashing rate setting processing is completed. On the other hand, when a game person is judged not to be the member by S96, it progresses to S98, and after the processing which sets a cashing rate to the 2nd cashing rate for nonmembers is made, this cashing rate setting processing is completed. Here, the 1st cashing rate for members set by S97 is a cashing rate higher than the 2nd cashing rate for nonmembers set by S98, as mentioned above.

[0130]Drawing 11 is a flow chart which shows the procedure of card R/W processing. First, judgment whether issue operation of the reward-balls card by the pressing operation of the reward-balls card issuing switch 2c was performed by S31 is made. When it is judged that issue operation is not performed by S31, this card R/W processing is completed. On the other hand, when it is judged that issue operation was performed by S31, the processing which refers to the cashing rate set up by the cashing rate setting processing which he followed to S32 and was mentioned above is made.

[0131]Next, it progresses to S33 and the processing which writes the information on enumerated data and the information on the cashing rate referred to by S32 in a reward-balls card is made. Next, it progresses to S34, and after the processing which discharges and publishes the reward-balls card with which enumerated data and a cashing rate were written in from a call and the issuing device 2 is made, this card R/W processing is completed.

[0132]Thus, if a reward-balls card is published, the game person can carry out premium exchange of the enumerated data written in the reward-balls card based on the cashing rate written in the reward-balls card. Therefore, the game person who has a member's qualification can do premium exchange on more advantageous conditions than a nonmember's game person.

[0133]drawing 12 -- the game position of the game machine 6, and calculation -- it is a timing chart for explaining the timing of prohibition and permission of operation.

[0134]This timing chart explains as an example the case where the lucky number system is adopted, as a system (own-balls game system) which restricts the own-balls game mentioned above.

[0135]First, great success occurs in big hit patterns other than a probability-changing figure, and the game position of the game machine 6 changes from a normal state to a great success state. It will be in the state of approving from the state where counting operation was forbidden, with this change. If generated by the premium ball during great success, a lot of expenditure balls will arise and a difference number (expenditure balls number-placing balls number) will turn into a positive number.

[0136]Then, even if great success is completed, as long as a difference number is a positive number, the state where counting operation was permitted continues. a game person -- a ball -- calculation -- sliding operation of the lever 5a is carried out, and if the reward-balls card issuing switch 2c is operated and paid after changing into a gained point all the pachinko balls obtained as a result of the game, while a difference number is reset by 0, it will be in the state where counting operation was forbidden.

[0137]Then, if great success occurs by a probability-changing figure, while being in said state where counting operation was permitted similarly, a difference number will turn into a positive number. And even if great success is completed after that, as long as probability changing continues, the state where counting operation was permitted continues.

[0138]If a game person pays like the above-mentioned after the great success is completed, while a difference number is reset by 0, it will be in the state where counting operation was forbidden.

[0139]Great success of the last to illustrate occurs in a lucky number after that, and the great success is completed. At this time, the difference number is a positive number with a lot of expenditure balls by which it was generated during great success, and it is in the state where counting operation was permitted. here -- a game person -- a ball -- calculation -- sliding operation of the lever 5a is carried out, when all the pachinko balls obtained as a result of the game are changed into a gained point, a difference number is reset by 0, and it will be in the state where counting operation was forbidden.

[0140]As shown above, when a game person is the member who uses a regular membership card according to this 1st embodiment, it is made high so that a cashing rate may become advantageous to a game person rather than the case where he is a nonmember. For this reason, since it becomes more advantageous in respect of the cashing rate as a rate of premium exchange than the direction which the direction which has the qualification for receiving the privilege of a member does not have even if it is the same game result value, when it is the member, a game person has a hope to the result of a game, and his interest improves on the occasion of a game. Since it will become advantageous in respect of the cashing rate as a rate of

premium exchange if it becomes a member, the effect of the ability to make a member increasing can be acquired.

[0141]In this embodiment, when a game person was the member, the example which makes a cashing rate higher than a nonmember was explained. However, those who become a target as which it is set in a cashing rate in this way that it is high are not necessarily restricted to a member. That is, members are targeted [not all] high for a cashing rate, but it may be made to target only a special member with high frequency in use of an amusement center higher for a cashing rate than for the other person. A member and a nonmember are fair and only a male game person may be made to target ** higher in a cashing rate than the other person only a female game person according to the management policy of an amusement center. A member and a nonmember are fair and only the game person beyond predetermined age may be made to target only the game person below predetermined age higher for a cashing rate than for the other person according to the management policy of an amusement center.

[0142]The example shown above is an example.

What is necessary is just to perform making the cashing rate as a specific game person's rate of premium exchange higher than the other game person's cashing rate for the game person who has a certain privilege acquisition qualification defined beforehand.

[0143]A 2nd embodiment, next a 2nd embodiment are described. In a 1st embodiment mentioned above, when it was the member to whom a game person has a membership card, the example which makes a cashing rate higher than a nonmember's case was shown. Besides, in addition, in this 2nd embodiment, a member rank is given to a member, and even if it is the same member, the example which changes a cashing rate by a member rank is explained. In this 2nd embodiment, in order to avoid the duplicate explanation, a point of difference with a 1st embodiment is explained as a center.

[0144]First, the relation between a member rank, and a cashing rate and a member rank standard is explained. Drawing 13 is a figure showing the relation between a member rank, and a cashing rate and a member rank standard according to a tabular format. In drawing 13, the cashing rate and the member rank standard are shown for every member rank. The member is divided into the rank of the three-stage of the 1st rank - the 3rd rank. The rank division of the member rank is carried out on the basis of a member individual's game time. The game time for the past two months is given to the game person of 300 hours or more, and, as for the 1st rank that is the top rank, a cashing rate is provided in 4.0 (a circle/ball). The game time for the past two months is given to the game person of less than 200 hours for 150 hours or more, and the 2nd rank of a cashing rate is provided in 3.5 (a circle/ball). The game time for the past two months is given to the game person of less than 150 hours, and, as for the 3rd rank that is the lowest rank, a cashing rate is provided in 3.0 (a circle/ball). Thus, cashing rates differ for every member rank, and the cashing rate is made high as a member's rank goes up. Also in this case, the cashing rate corresponding to each rank (the 1st rank - the 3rd rank) is set up more highly than the cashing rate for nonmembers. Since a rank falls in the 2nd rank when a game is not played for a while but the game time for the past two months in the time is less than 300 hours, even if it is a game person of the 1st rank, for example, a game person's game motivation can be promoted.

[0145]Each member's member rank is managed as each member's personal information by the management computer 200 shown in drawing 3. As mentioned above, in the management computer 200. During the period when the member's game person is playing the game, since member use information is transmitted from the control device 10, it considers that the time when the member use information is transmitted is the member's game time, game time is clocked, and accumulation memory of the game time which is a hour of use of the game machine for every member is carried out based on the time check. And in the management computer 200, the game time for the past two months is found for every member, and a member rank is given to each member according to the game time for the past two months. Each member's member rank is managed as each member's personal information in the management computer 200.

[0146]Next, the cashing rate setting processing by a 2nd embodiment is explained. In a 2nd embodiment, the contents of processing of cashing rate setting processing differ compared with a 1st embodiment.

[0147]Drawing 14 is a flow chart which shows the procedure of the cashing rate setting processing by a 2nd embodiment.

[0148]First, judgment whether a cashing rate is ending with a set is made by S101. When a cashing rate is judged to be ending with a set by S101, this cashing rate setting processing is completed. On the other hand, when a cashing rate is judged not to be ending with a set by S101, it progresses to S102 and judgment whether the membership card is inserted in the member card reader 8 is made.

[0149]Since it is not use of the game machine 6 by a member when it is judged that the membership card

is not inserted by S102, it progresses to S111 and the processing which sets a cashing rate to the cashing rate for nonmembers is made. On the other hand, when it is judged that the membership card is inserted by S102, it progresses to S103, and after the processing which reads the membership information read from the membership card is made, this cashing rate setting processing is completed. Next, it progresses to S104, and in order to compare whether you are the true member based on the membership information read by S103, the processing which transmits matching request information is made. If this matching request information is transmitted, in the management computer 200, the membership number contained in matching request information and the registered membership number will be compared, and the collation result information which shows that matching result will be transmitted to the control device 10.

[0150]Next, it progresses to S105 and judgment whether the collation result information which answers matching request information was received is made. In S105, he waits to receive collation result information and follows it to S106. In S106, judgment whether a game person is the member is made based on the received collation result information. When a game person is judged not to be the member by S106, it progresses to S111 mentioned above, and the processing which sets a cashing rate to the cashing rate for nonmembers is made.

[0151]On the other hand, when a game person is judged to be the member by S106, it progresses to S107 and the processing which transmits member rank demand information is made. This member rank demand information is information for requiring the information on the member rank (the 1st rank – the 3rd rank) given to the game person who is the member of the management computer 200.

The information which requires the reply of the information and member rank which specify the game person who is performing the game with the game machine 6 is included.

This member rank demand information is transmitted to the management computer 200 from the control device 10 apart from the matching request information mentioned above.

[0152]If member rank demand information is transmitted from the control device 10, in the management computer 200, the member rank information which can specify an applicable member's member rank will be transmitted to the control device 10 according to member rank demand information based on the personal information of the member who has managed. Next, it progresses to S108 and judgment whether the member rank information which answers member rank demand information was received is made. In S108, he waits to receive member rank information and follows it to S109. In S109, a game person's member rank is distinguished based on the received member rank information.

[0153]Next, it progresses to S110 and the processing which sets a game person's cashing rate to the cashing rate according to a member rank is made. The data in which the relation of a member rank and a cashing rate as specifically shown in drawing 13 mentioned above is shown is memorized by the control device 10, the cashing rate according to the member rank distinguished by S109 is chosen using the data, and the cashing rate is set as a cashing rate according to the game person's member rank. Here, the cashing rate according to member rank set by S109 is a cashing rate higher than the 2nd cashing rate for nonmembers set by S111. This cashing rate setting processing is completed after S110.

[0154]As shown above, as well as the case of a 1st embodiment when it is the member for whom a game person uses a regular membership card, in this 2nd embodiment, it is made high so that a cashing rate may become advantageous to a game person rather than the case where he is a nonmember. For this reason, since it becomes more advantageous in respect of a cashing rate than the direction which the direction which has the qualification for receiving the privilege of a member does not have even if it is the same game result value, when it is the member, a game person has a hope to the result of a game, and his interest improves on the occasion of a game. Since it will become advantageous in respect of a cashing rate if it becomes a member, the effect of the ability to make a member increasing can be acquired.

[0155]In this 2nd embodiment, a cashing rate is made high as the cashing rates as a rate of premium exchange differ according to a member rank and a member rank turns into a higher rank rank, even if it is the same member. For this reason, since the one where a member rank is higher becomes advantageous in respect of a cashing rate rather than the one where a member rank is lower even if it is the same member, when it is a high member rank, a game person has a hope further to the result of a game, and his interest improves further on the occasion of a game.

[0156]Since the one where a member rank is higher becomes advantageous in respect of a cashing rate rather than the one where a member rank is lower even if it is the same member, a game person is going to make his member rank high according to the conditions of improvement in a member rank. For this reason, the positiveness to a game person's game can increase. Since a member rank becomes high concretely in the case of this 2nd embodiment so that the total time of the game time for the past two months is long, a game result is considered that a member's game person comes to perform a game positively irrespective of

whether it becomes what brings about profits for a game person. That is, even if 1 time of a game result will become disadvantageous for a game person, in order that the time spent on the game may be useful for improvement in a member rank, a game person's loss feeling is filled up and it can avoid making the hope for a next game lose.

[0157]In this 2nd embodiment, the case where the standard of a rank division of a member rank was made into the accumulated time of the game time for the past two months was explained as an example. However, the conditions of not only the game time for the past two months but others may be used for the standard of a rank division of not only this but a member rank. For example, a member's game time in prescribed periods other than for [, such as game time for the past one month,] the past two months, The number of times of attendance to a member's amusement center in a past prescribed period, the amount of money which the member spent on the game in the past prescribed period, It is good also as a standard of a member rank's rank division of various kinds of conditions of others, such as enumerated data of the ball in which the member did premium exchange in the past prescribed period, the number of times of great success which the member generated in the past prescribed period, a member's defeat amount of money in a past prescribed period, a member's present amount of savings balls, or a member's age.

[0158]In this 2nd embodiment, the member's cashing rate was changed by carrying out the rank division of the member. However, it may be made to change a cashing rate by a member's sex, without carrying out the rank division not only of this but the member. It may be made for the same rank to also change a cashing rate by a member's sex in addition to changing a cashing rate by a member's rank division.

[0159]In the different special day or special period for every members, such as a member's birthday or a member's birth month, a cashing rate is limited to an applicable member and it may be made to make it into a cashing rate higher than the usual cashing rate temporarily. If it is made such, while being able to provide individual service to a member, in the special day or the special period for such every member, attendance to an applicable member's amusement center can be promoted.

[0160]In a special day common to a member or special periods, such as a tray, the end of a year, the New Year, or a shop's opening day of an amusement center, it may be made to make a cashing rate into a cashing rate higher than the usual cashing rate temporarily about all members. If it is made such, the number of visitors of the amusement center in such a special day or a special period can be made to increase. In such a special day or a special period, it may be made to make a cashing rate into a cashing rate higher than the usual cashing rate not only about a member but about a nonmember. If it is made such, the number of visitors of the amusement center in such a special day or a special period can be made to increase further.

[0161]Next, the modifications and the focus of the embodiment of the invention described above are enumerated below.

(1) When the enumerated data of a game person's pachinko ball exceed the number of the maximum reward balls considered from game time, the cashing rate defined corresponding to the enumerated data may be repealed. The number of the maximum reward balls specifically considered to be obtained per unit time is stored in the control device 10. And in the game machine 6, time after a game person inserts a membership card at the time of a game start until a membership card is discharged at the time of game completion is measured as game time. And it is judged whether a game person's calculated number of pachinko balls exceeds the number of the maximum reward balls which can be gained in the measured game time. The judgment is performed by distinguishing whether a game person's number of pachinko balls calculated on the basis of the number of the maximum reward balls per unit time memorized beforehand and a relation with the measured game time are applied to a standard. In the judgment, in giving the cashing rate defined according to the member and the nonmember when the number of the maximum reward balls was not exceeded and, exceeding the number of the maximum reward balls on the other hand, it judges that the malfeasance was made and performs predetermined treatment, such as reporting generating of an error. In this case, the numbers of the maximum reward balls obtained per unit time differ depending on the model of game machines, such as a fever type, a right matter type, a vane object type, and general *****. For this reason, it is necessary to set up beforehand the number of the maximum reward balls obtained per unit time for every game machine. As an example, the number of the maximum reward balls is set as values, such as 2500 etc. pieces, in 5 minutes. In this case, when it judges that it did not have a malfeasance, for example when there were 2500 enumerated data by the game for 5 minutes, for example, there are 5000 enumerated data by the game for 5 minutes, it is judged as a thing with a malfeasance. It may be made to give the minimum cashing rate which error information was performed when it was judged that the malfeasance occurred, and also was defined beforehand to enumerated data.

[0162]In composition of calculating a ball with the jet counter which could not calculate for every game

machine but was formed for every game machine install island, Game time which was mentioned above is measured to the game machine side, at the time of game completion, a membership number, the stand number of a game machine, and the information on game time are transmitted to the controlling device of a game machine install island, and the controlling device memorizes the information. And a game person brings the ball tray into which reward balls were put to a jet counter, and after he inserts a membership card in the membership card treating part provided in the jet counter, he performs calculation of a ball. And a jet counter reads membership information, such as a membership number, from a membership card, transmits the information to a controlling device with the information on the enumerated data of a ball, and requires the check of the relation of the game time and the number of reward balls by a controlling device. In a controlling device, based on the relation between game time and the number of reward balls, it judges by a method which mentioned above whether the malfeasance was performed or not, and the information on the decision result is transmitted to a jet counter. The cashing rate defined according to the member and the nonmember when the information on the purport that the malfeasance is not performed was received in a jet counter is given, and when the information on the purport that the malfeasance is performed is received on the other hand, the same treatment as what was mentioned above, such as reporting generating of an error, is performed.

[0163]Also in a gap to mention above, although it is not the member or is the member, the cashing rate for nonmembers beforehand provided in a certain game person who did not use a membership card for convenience' sake is given to enumerated data.

[0164]As mentioned above, since a high cashing rate is not given when there are enumerated data which have not been considered from game time, the malfeasance about a cashing rate can be prevented and the security in the case of changing a cashing rate can be raised.

[0165](2) The composition with which recording media, such as a reward-balls card, are made not to be published may be adopted into a game person's leaving chair. The sensor which detects a game person's existence is specifically attached to the chair seat of the game machine 6, or the specified position of a game machine install island, and it is detected whether the game person is sitting on each game machine 6. And when a game person is not detected by such a sensor (i.e., when it is among a leaving chair), the switch is changed into a locked position so that the pressing operation of the reward-balls card issuing switch 2c of a call and the issuing device 2 cannot be carried out. If it is made such, a malfeasance person can be prevented from publishing a reward-balls card unjustly in a game person's leaving chair, and security can be raised.

[0166](3) The ball tray of the composition which can distinguish easily that the pachinko ball was carried in from other game machines with which cashing rates differ may be adopted. Specifically, a ball is made the composition which only a prescribed number can store inside the ball tray 5 mentioned above. That is, it constitutes so that only 1000 pieces can store a ball, when ball omission is performed from the lower dish 6c in the inside of the ball tray 5, for example. The sensor formed in the ball tray 5 detects the number of the ball in the ball tray 5, and it is grasped. In this case, since the ball which exceeds 1000 pieces by normal operation cannot go into the inside of the ball tray 5, if more than 1000 balls are detected by a sensor, it will consider that the ball was carried in from other game machines, and error information will be performed. Since carrying in of the ball from other game machines can be prevented if such composition is used, the malfeasance about a cashing rate can be prevented and the security in the case of changing a cashing rate can be raised.

[0167](4) In a 1st and 2nd embodiment, although each game machine showed the example which can calculate a ball, in composition of calculating with the jet counter formed in the game machine install island, the following composition may be adopted. If great success occurs, a cashing rate will be made high, when lots are cast after the end and it is in charge of a lottery. Specifically, the function in which a lottery can be performed is given to the calling lamp of the call and issuing device 2 grade mentioned above. And if great success occurs, lots will be cast by a game person operating the lottery final controlling element provided in the calling lamp after the end. The number of the cashbox which puts in a ball is chosen in this lottery. In an amusement center, many cashboxes having an IC chip are prepared, and an ID number is given and stored in each cashbox. Corresponding to each ID number, the cashing rate is set up beforehand. As for the cashing rate, the high cashing rate of ** and the lottery are set as either of the low cashing rates for a gap per lottery. Therefore, in a lottery, the case where the ID number of a high cashing rate is obtained serves as a hit of a lottery, and a game person acquires the qualification for acquiring a high cashing rate. The case where the ID number of a low cashing rate is obtained on the other hand serves as a blank of a lottery, and a game person acquires a low cashing rate. If a lottery is performed, an official in charge will bring the cashbox of the ID number obtained by the lottery to a game machine. A game person

puts a ball into the cashbox which the official in charge brought, sets the cashbox to a jet counter, and performs calculation. In that case, an ID number is read from a cashbox's IC chip to a jet counter, and the cashing rate corresponding to the ID number is given to enumerated data. And the storage with which enumerated data and the information on a cashing rate were written in from the jet counter is published. Since a cashing rate will be decided by a lottery if the above composition is adopted, a game person's interest improves.

[0168](5) Especially in a 1st and 2nd embodiment mentioned above, although saved balls are not explained, when saved balls are made using a membership card, the following composition may be adopted. Here, the saved balls refer to depositing the ball of game person possession in an amusement center by a prescribed condition. Saved balls can carry out premium exchange like the usual ball, and it is also possible to change the saved balls into a actual ball or gained point, and to use for a game. It is called a saved-balls re-play to use saved balls for a game. Management of saved balls is performed by the controlling device of management computer 200 grade mentioned above.

[0169]It is possible to perform saved balls, and when using two or more kinds of cashing rates, saved balls may be made to be made for every cashing rate. In the case where five kinds of cashing rates, 2.0 yen / ball, 2.5 yen / ball, 3.0 yen / ball, 3.5 yen / ball, and 4.0 yen / ball, are specifically used, For example, when performing 2000 saved balls after the game machine of the cashing rate of 3.0 yen / ball performs a game, 2000 saved balls are memorized by the saved-balls data of 3.0 yen / ball of a member. When the game machine of other cashing rates performs a game, the number of balls saved is memorized by the saved-balls data corresponding to the cashing rate. Saved balls may be managed with the total value of the saved-balls amount of money of these cashing rates.

[0170]Next, an example of the example of saved balls is shown and the example of employment of saved balls is explained. In [in / the case where saved balls are made for every cashing rate] a certain member's saved-balls data, When 2000 pieces, and 3.5 yen / ball are 5000 pieces and there are [2.0 yen / ball / 3000 4.0 yen / balls] 3000 pieces, and 3.0 yen / ball in 2000 pieces, and 2.5 yen / ball, saved-balls total value is 15000 pieces. If this saved-balls total value is converted into the amount of money, it will change to 47000 yen.

[0171]The number of balls saved is managed for every cashing rate, and the ball for a re-play may be made to be repaid to a game person from the saved balls of the same cashing rate as the cashing rate of the game machine which performs a re-play at the time of a saved-balls re-play. In this case, only the number of refunds is subtracted and the number of balls saved of the cashing rate repaid to the game person is managed.

[0172]Saved balls are managed with saved-balls total value, and it may be made to manage saved-balls data by subtracting from saved-balls total value the amount of money which repaid to the cashing rate of the game machine which performs a re-play, and carried out the multiplication of the number at the time of a saved-balls re-play. When a cashing rate performs a re-play with the game machine of 2.5 yen / ball, the amount of money of 2.5 yen / ball x refundment number is subtracted from 47000 yen, and, specifically, the remaining amount of money is managed as the saved-balls amount of money.

[0173]Saved balls are managed with saved-balls total value, and it may be made to manage saved-balls data irrespective of the cashing rate of the game machine which performs a re-play by subtracting from saved-balls total value the amount of money which repaid to the average value of the cashing rate and carried out the multiplication of the number at the time of a saved-balls re-play. Specifically, 2.0 yen / ball, 2.5 yen / ball, 3.0 yen / ball, 3.5 yen / ball, and 4.0 yen average value are 3.0 yen / ball. Therefore, in performing a re-play, the amount of money of 3.0 yen / ball x refundment number is subtracted from 47000 yen, and it manages the remaining amount of money as the saved-balls amount of money.

[0174]If the above saved balls are managed, saved balls are easily manageable even if it is a case where two or more kinds of cashing rates are set up.

[0175](6) The function in which a lottery can be performed is given to the calling lamp of the call and issuing device 2 grade mentioned above, a game person casts lots at the time of a game start, and it may be made to set up a cashing rate according to the result of the lottery. In that case, the set-up cashing rate is effective till the end of a game. That is, privilege acquisition qualification may be given to the game person who was in charge of the lottery. Since a cashing rate will be decided at the time of a game start if it does in this way, a game person's interest improves.

[0176](7) When an accumulation operation is done with the controlling device of the control device 10 grade which mentioned above the number of times of a start-up start of a one game person's variable display device in one set of the game machine 6 and the number of times becomes more than prescribed frequency (for example, 1000 times), it may be made to make a cashing rate into a cashing rate higher than

the usual cashing rate. That is, the number of times of a start-up start may give privilege acquisition qualification to the game person who became prescribed frequency. Since the privilege about a cashing rate will be given to the game person who played the game for a long time if it does in this way, a game person's interest improves.

[0177](8) When there is a game machine to which the exclusively use of the female game person called a female dedicated base to an amusement center can be carried out, it may be made to make only the cashing rate of the game machine into a cashing rate higher than the usual cashing rate. That is, privilege acquisition qualification may be given to a female game person. Since the privilege about a cashing rate will be given to a female game person if it does in this way, a female game person's interest improves.

[0178](9) In the service improvement time zone of the amusement center called a service time, it may be made to make the cashing rate of a game machine into a cashing rate higher than the usual cashing rate. That is, privilege acquisition qualification may be given to the game person who plays a game in a predetermined time zone. Since the privilege about a cashing rate will be given to a game person if a game is played in a predetermined time zone if it does in this way, a game person's interest improves.

[0179](10) The qualification discriminating means which distinguishes whether a game person has the privilege acquisition qualification defined beforehand by Steps S92-S96 shown in drawing 10 is constituted. Those who acquired the qualification for predetermined conditions, such as a game person who fulfills the member of an amusement center, the special member of an amusement center, and predetermined sex conditions, or a game person who fulfills a predetermined age condition, receiving a privilege are contained in the privilege acquisition qualification which this qualification discriminating means distinguishes.

[0180](11) A rate determination means of premium exchange by which Step S97 shown in drawing 10 and S98 determine the rate of premium exchange of the game result value used as a game person's possession (cashing rate) according to the discriminated result of said qualification discriminating means is constituted. All the value in which the liquidation which became a game person's possession as a result of the game in game machines, such as a pachinko ball, a score, and coin, is possible is included in the game result value in this case.

[0181](12) With the call and the issuing device 2 shown in drawing 1. The recording medium issuing which publishes the recording medium (reward-balls card) which recorded the information that the rate of premium exchange (cashing rate) determined by the information (enumerated data of a pachinko ball) that the game result value used as a game person's possession can be specified, and said rate determination means of premium exchange could be specified is constituted. Various recording media, such as a magnetic-recording-type card and a receipt of paper, are contained in this recording medium.

[0182](13) As shown in Step S110 of drawing 14, said rate determination means of premium exchange determines the rate of premium exchange according to the game person's rank, when determining the rate of premium exchange of the game person who has said privilege acquisition qualification. Ranks, such as sex of a member rank and a game person or a game person's age, are included in the rank of the game person in this case.

[0183](14) The embodiment mentioned above showed the example which compares whether you are the member based on the membership information read from the membership card. Collation of the password beforehand given to the member may be used together about the collation. The composition as which a game person can input a password is added concretely, and a game person inputs a password at the time of insertion of a membership card. In that case, the management computer 200 memorizes each member's password. And the management computer 200 may be made to compare the password which was inputted on the occasion of member collation in addition to collation of the membership information read from the membership card. And based on the result of such collation, it is judged whether a game person is the member. Security can be raised if it does in this way.

[0184](15) The technology of the modification shown in (3) mentioned above may be applied to the composition in a game machine install island unit. calculation which was specifically mentioned above -- it is aimed at the game machine install island of composition of carrying out the cyclic use of waste water of a next ball, out ball, and premium ball in a game machine install island. In the game machine install island, while having one ball tank for supplying a ball to each game machine of Shimauchi in Shimauchi and supplying a ball to each game machine from a ball tank according to expenditure of a ball, etc., the cyclic use of waste water of the ball is carried out by Shimauchi by grinding the collected ball and being again returned to a ball tank. In such a game machine install island, since the cyclic use of waste water of the ball is carried out by Shimauchi, it is in a normal state that the whole ball possession number is maintained at the fixed number. In such a game machine install island, a sensor detects the number of the ball in a ball tank (a 1000-piece unit grade may be sufficient as detecting accuracy, for example). And based on the

difference number called for by the operation of the "supply ball number-placing ball number", each game person grasps the number of own balls which it has in the ball tray 5 about each game machine, and calculates the total value in Shimauchi of those numbers of own balls. And when the total value exceeds the number of the ball which should be in a game machine install island essentially in more than a prescribed number, it is regarded as a thing with carrying in of the ball from other game machine install islands by Shimauchi, and error handling which the abnormal condition generated, such as a judgment of a purport and information, is performed. Since carrying in of the ball from other game machines can be prevented if it does in this way, the malfeasance about a cashing rate can be prevented per game machine install island, and the security in the case of changing a cashing rate can be raised.

[0185](16) The composition of (15) mentioned above is applicable also to the game machine install island of composition of being called a unit island. Here, a unit island carries out multi-unit connection of the game machine install island unit which can install four sets of game machines on a side front and the back side per one unit, and what can constitute one game machine install island is said. On such a unit island, it has the ball tank mentioned above for every unit, and the cyclic use of waste water of a ball which was uniquely mentioned above within 1 unit is performed. If a possession balls number as shown in (15) about such a unit island is managed, carrying in of a ball can be prevented in still higher accuracy, and the malfeasance about a cashing rate can be prevented in still higher accuracy.

[0186](17) The cashing rate explained in an above embodiment is a concept included in the rate of premium exchange. Since the rate of general premium exchange is also contained in this rate of premium exchange besides a cashing rate, the rate of general premium exchange may also be made to carry out the same handling as the cashing rate mentioned above.

[0187]

[The example of The means for solving a technical problem]

(1) The qualification discriminating means which distinguishes whether a game person has the privilege acquisition qualification (a member's qualification) defined beforehand by Steps S92-S96 shown in drawing 10 is constituted. A rate determination means of premium exchange by which Step S97 shown in drawing 10 and S98 determine the rate of premium exchange (cashing rate) of the game result value (enumerated data of a ball) used as a game person's possession according to the discriminated result of said qualification discriminating means is constituted. This rate determination means of premium exchange determines the rate of premium exchange of the game result value of game person possession as the rate of premium exchange more advantageous to a game person than the case where a game person does not have said privilege acquisition qualification (high cashing rate), when a game person has said privilege acquisition qualification.

[0188](2) With the call and the issuing device 2 shown in drawing 1. The recording medium issuing which publishes the recording medium (reward-balls card) which recorded the information that the rate of premium exchange determined by the information (enumerated data of a pachinko ball) that the game result value used as a game person's possession can be specified, and said rate determination means of premium exchange could be specified is constituted.

[0189](3) As shown in drawing 13, the game person who has said privilege acquisition qualification has which rank (member rank) of several ranks (member rank) from which the rate of premium exchange of said game result value differs in said privilege acquisition qualification. As shown in Step S110 of drawing 14, said rate determination means of premium exchange determines the rate of premium exchange according to said rank (member rank) of the game person, when determining the rate of premium exchange of the game person who has said privilege acquisition qualification.

[0190]

[The effect of the example of The means for solving a technical problem] The following effects can be acquired about Claim 1. When it is judged that a game person has the privilege acquisition qualification defined beforehand, it is decided that it will be a rate of premium exchange whose rate of premium exchange of the game result value of game person possession is more advantageous to a game person than the case where it does not have the privilege acquisition qualification. For this reason, since it becomes advantageous in respect of the rate of premium exchange rather than the direction which the direction which has privilege acquisition qualification does not have even if it is the same game result value, When a game person has privilege acquisition qualification, a hope can be given to a game person to the result of a game, and a game person's interest can be raised on the occasion of a game. That is, a game person's interest can be raised using the rate of premium exchange of game result value.

[0191]In addition to the effect about Claim 1, the following effects can be acquired about Claim 2. Since the game result value which became a game person's possession by issue of a recording medium, and its

rate of premium exchange are specified by the recorded information on a recording medium, it can perform easily exchanging game result value for a premium etc. at the rate of premium exchange recorded on the recording medium.

[0192]In addition to the effect about Claim 1, the following effects can be acquired about Claim 3. Since it becomes possible to obtain a different rate of premium exchange according to a game person's rank, the game person who has privilege acquisition qualification, When a game person has privilege acquisition qualification, a hope can be further given by a game person to the result of a game, and a game person's interest can be further raised on the occasion of a game. That is, a game person's interest can be further raised using the rate of premium exchange of game result value.

[Translation done.]

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a partial front view of a game machine install island.

[Drawing 2]It is an important section sectional view of a game machine and a ball tray.

[Drawing 3]It is a system block figure of a game machine install island.

[Drawing 4]It is a block diagram of a control device.

[Drawing 5]Drawing 5 (a) is a flow chart which shows the procedure of a main process, and drawing 5 (b) is a flow chart which shows the procedure of close prohibition / release processing.

[Drawing 6]Drawing 6 (a) is a flow chart which shows the procedure of count processing, and drawing 6 (b) is a flow chart which shows the procedure of the message exchange once.

[Drawing 7]It is a flow chart which shows the procedure of probability-changing lucky processing.

[Drawing 8]It is a flow chart which shows the procedure of ball return processing.

[Drawing 9]calculation -- it is a flow chart which shows the procedure of permission and a prohibition process.

[Drawing 10]It is a flow chart which shows the procedure of the cashing rate setting processing by a 1st embodiment.

[Drawing 11]It is a flow chart which shows the procedure of card R/W processing.

[Drawing 12]the game position of a game machine, and calculation -- it is a timing chart for explaining the timing of prohibition and permission of operation.

[Drawing 13]It is a figure showing the relation between a member rank, a cashing rate, and a member rank standard according to a tabular format.

[Drawing 14]It is a flow chart which shows the procedure of the cashing rate setting processing by a 2nd embodiment.

[Explanations of letters or numerals]

As for a control device and 52, 2 is [a management computer and 8] member card reader writers a ball counter and 200 a call and an issuing device, and 10.

[Translation done.]

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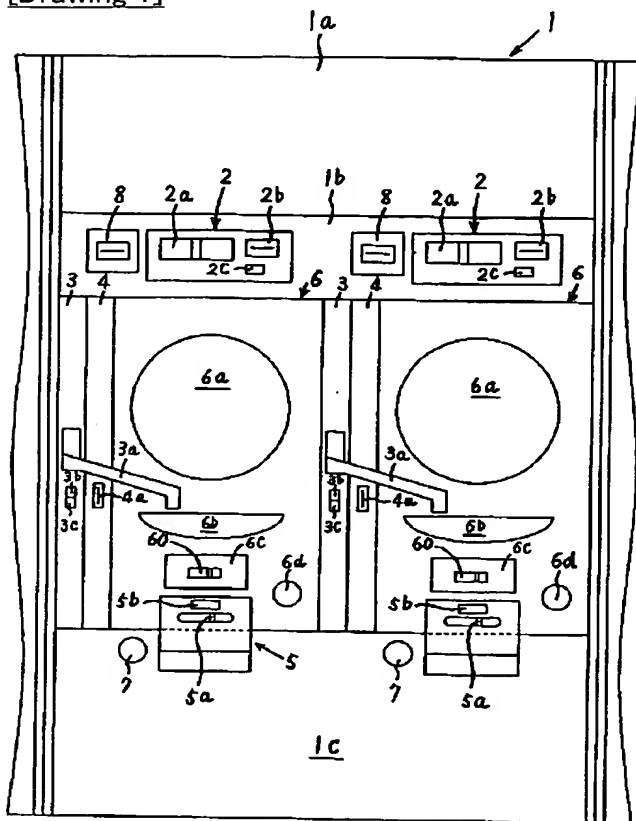
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2.**** shows the word which can not be translated.

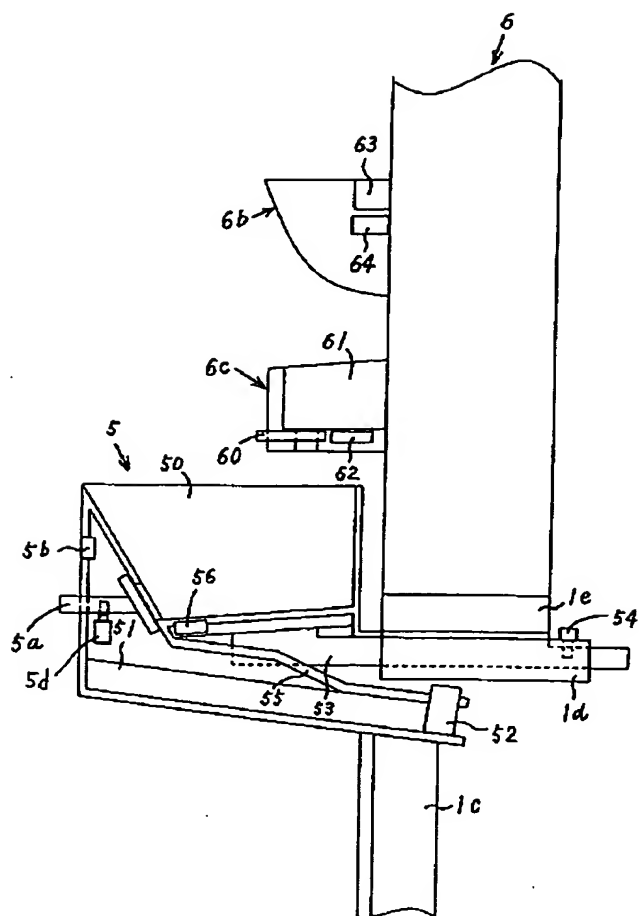
3.In the drawings, any words are not translated.

DRAWINGS

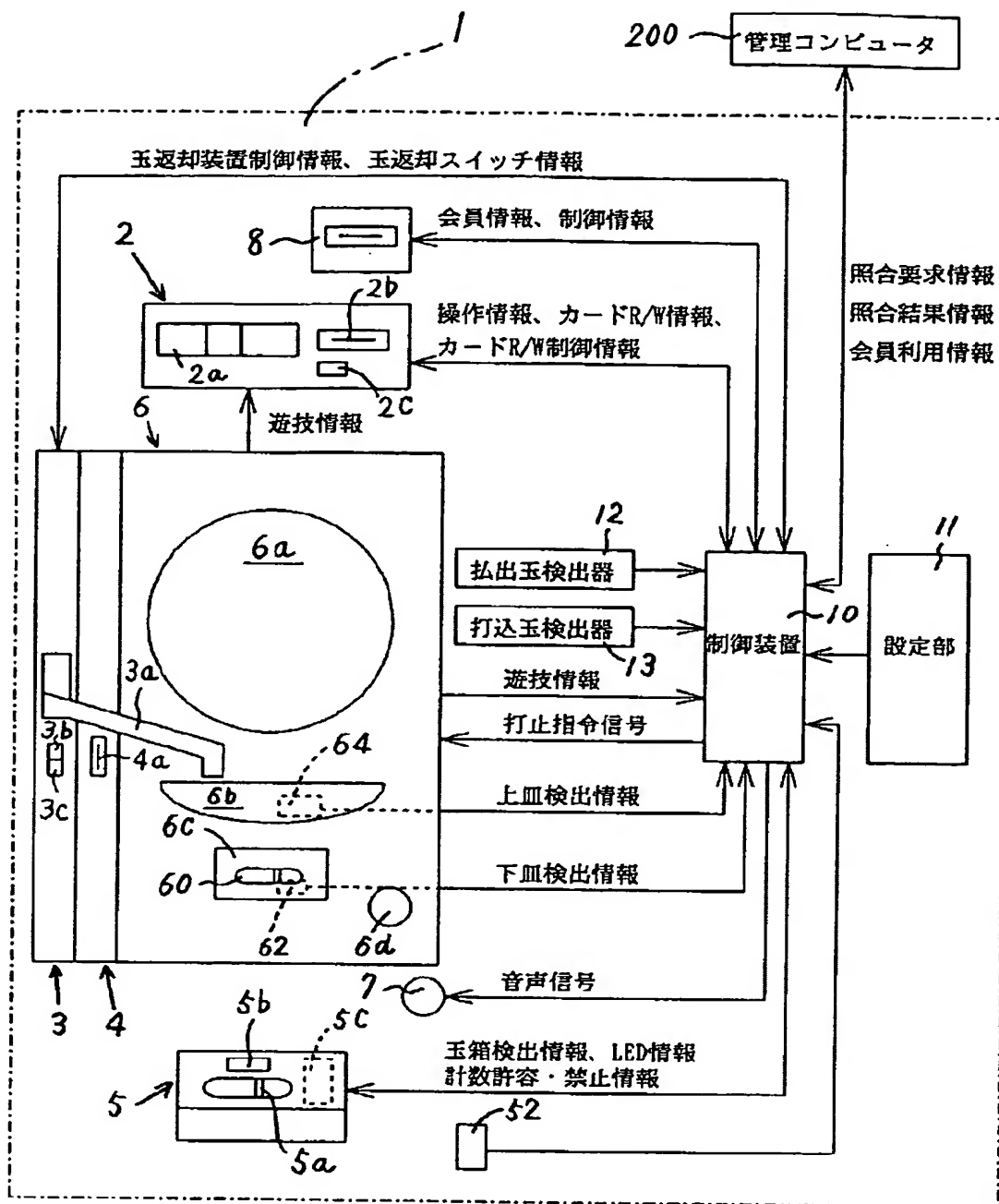
[Drawing 1]



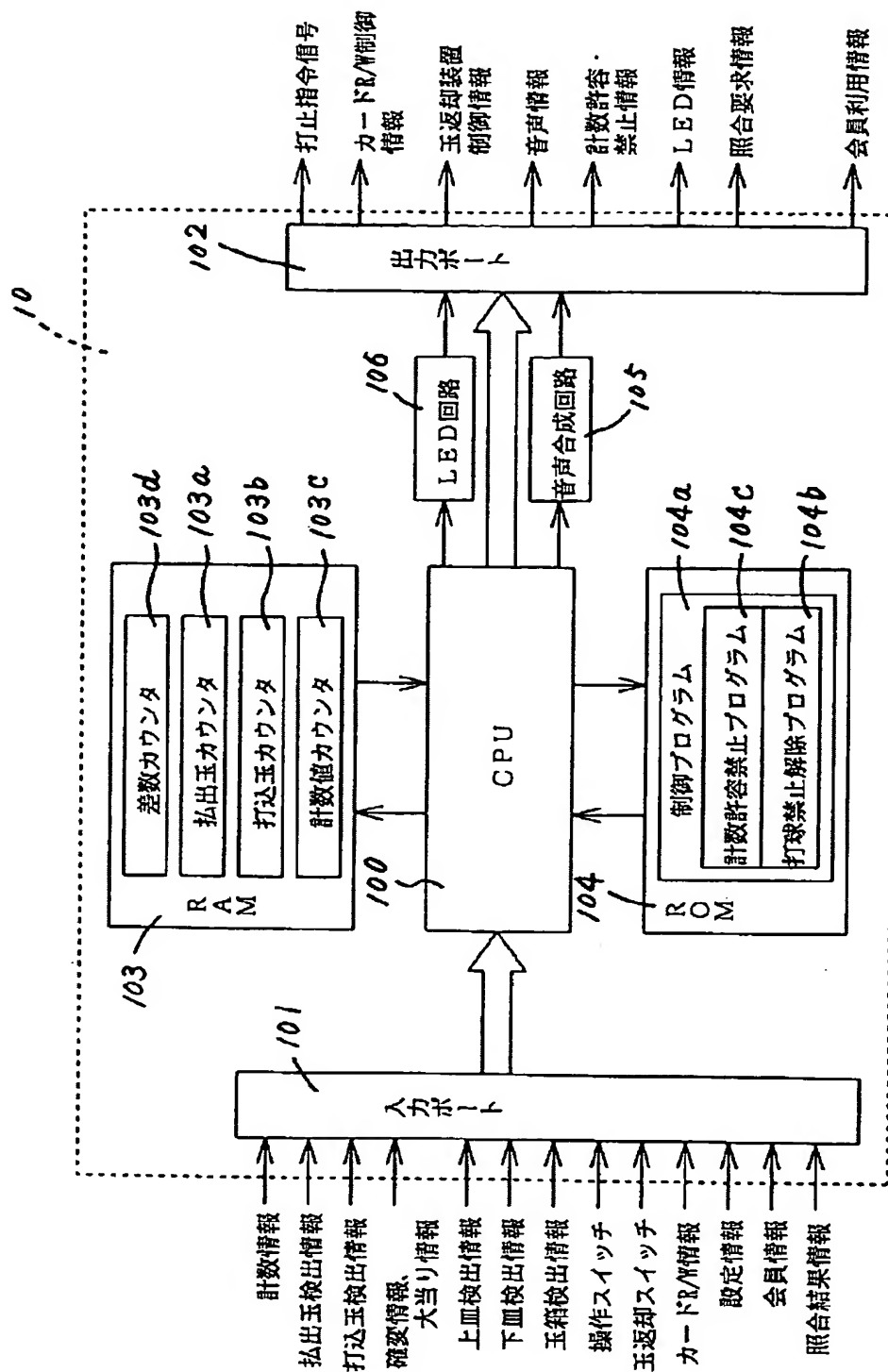
[Drawing 2]



[Drawing 3]

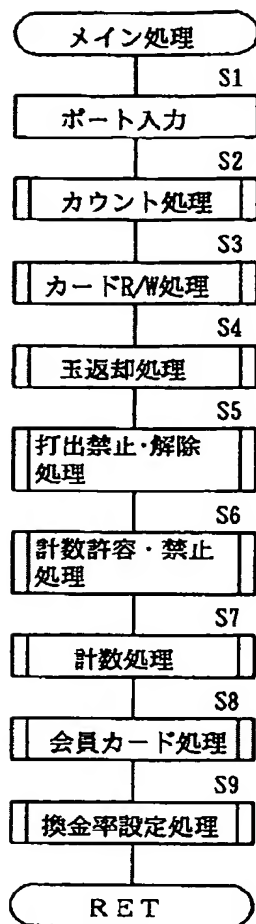


[Drawing 4]

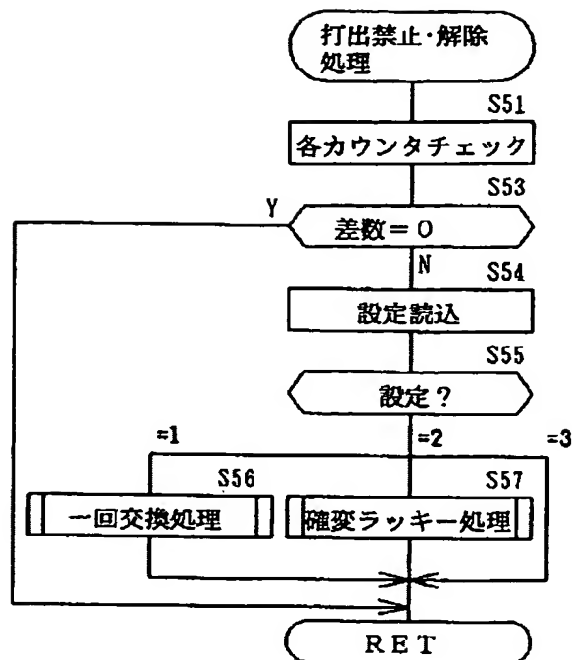


[Drawing 5]

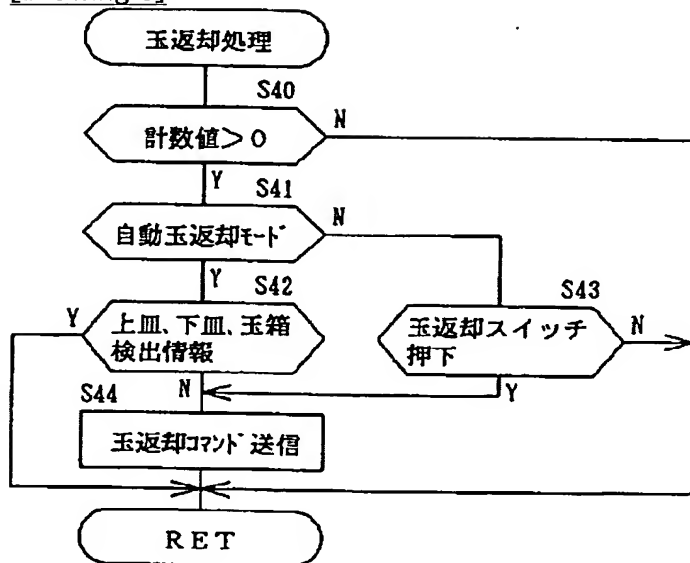
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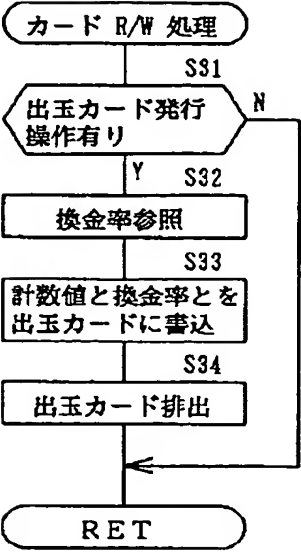
(b)



[Drawing 8]

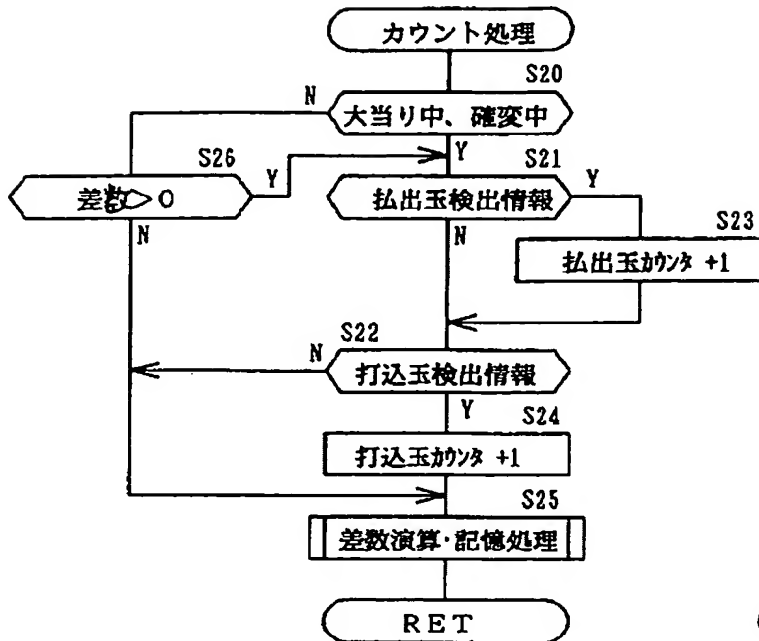


[Drawing 11]

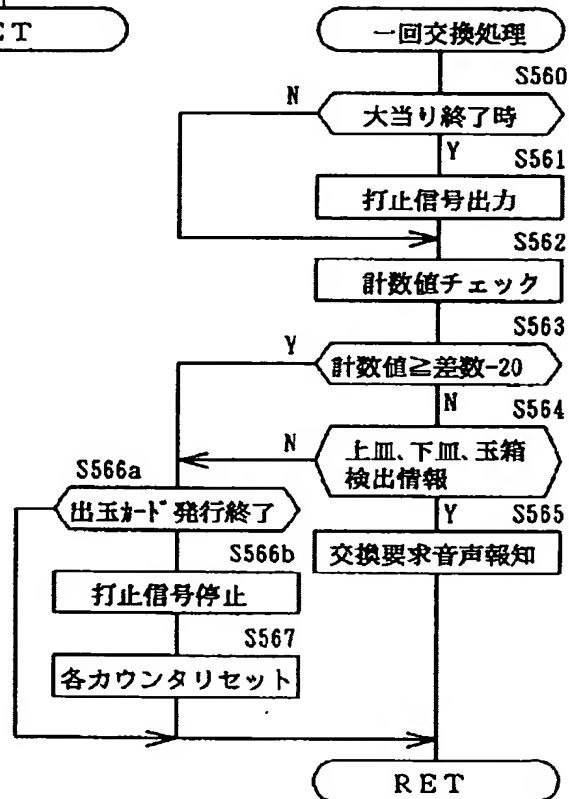


[Drawing 6]

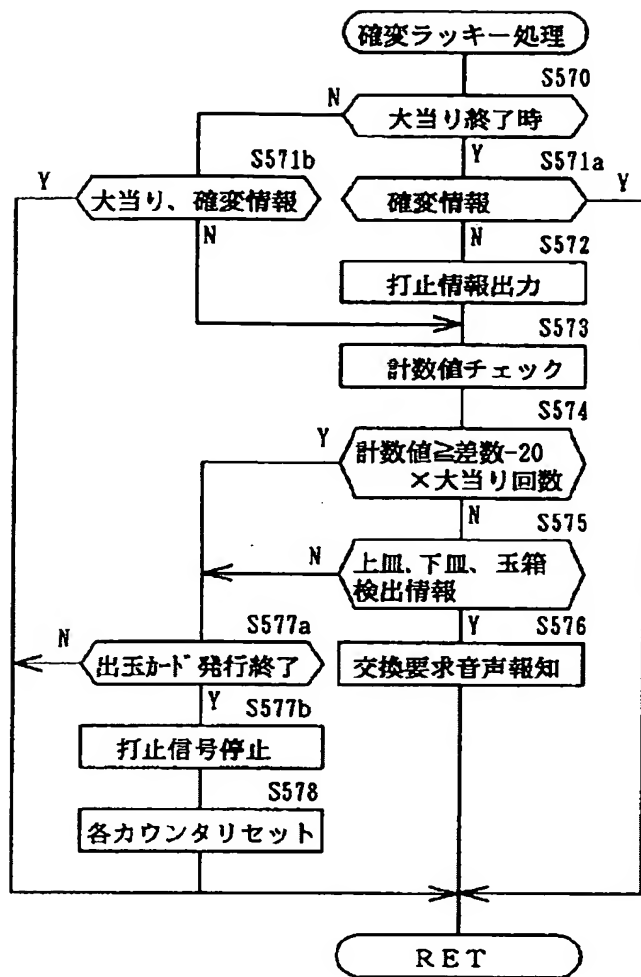
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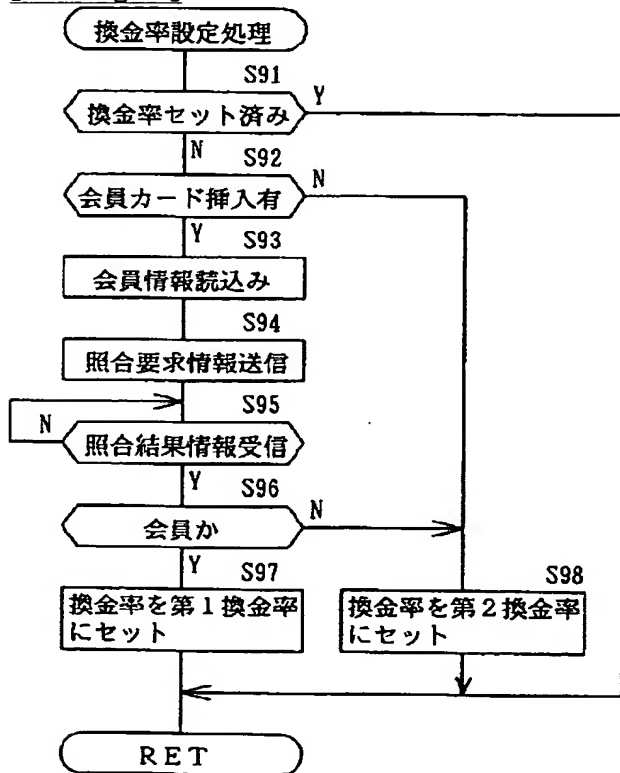
(b)



[Drawing 7]



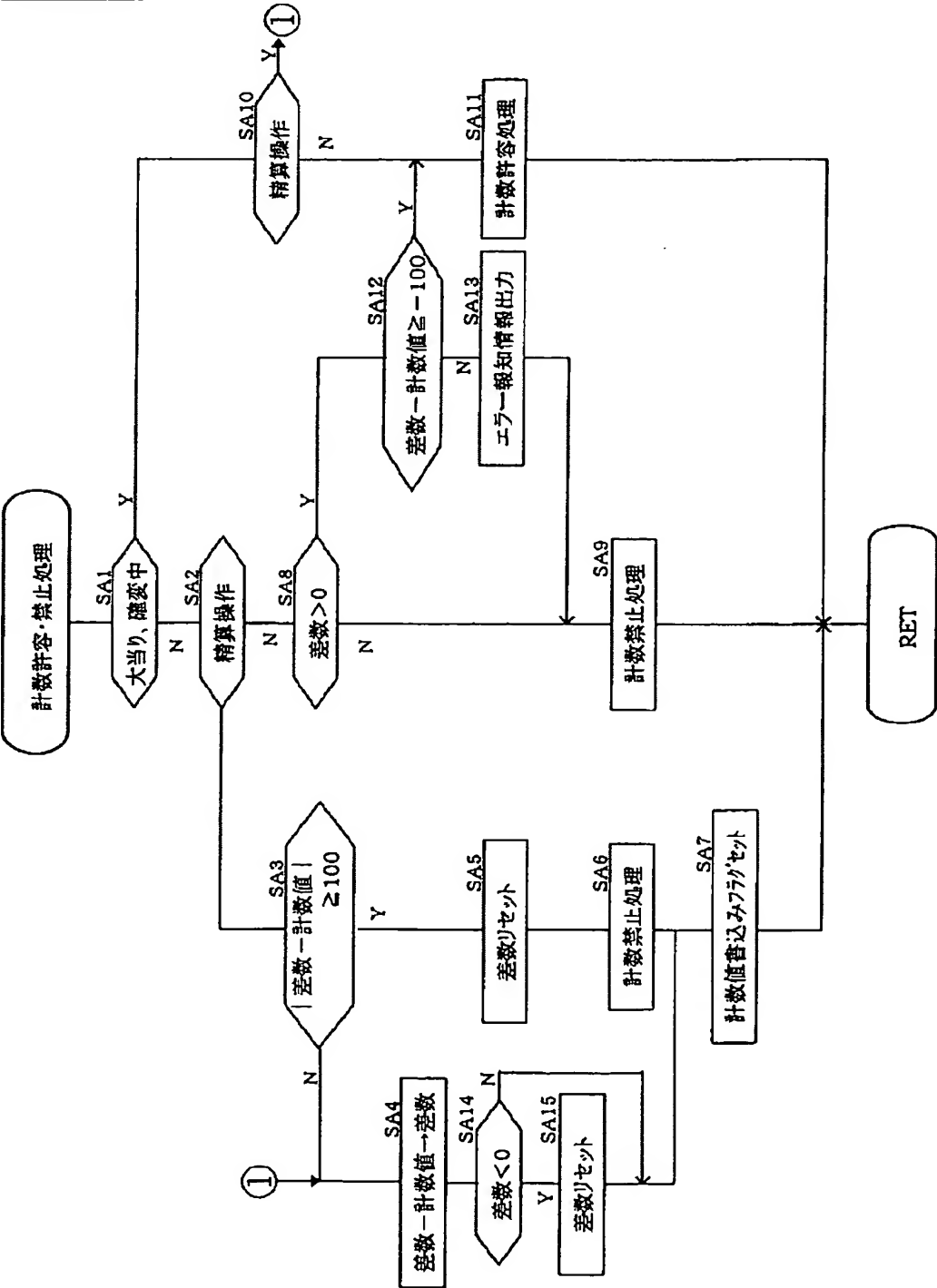
[Drawing 10]



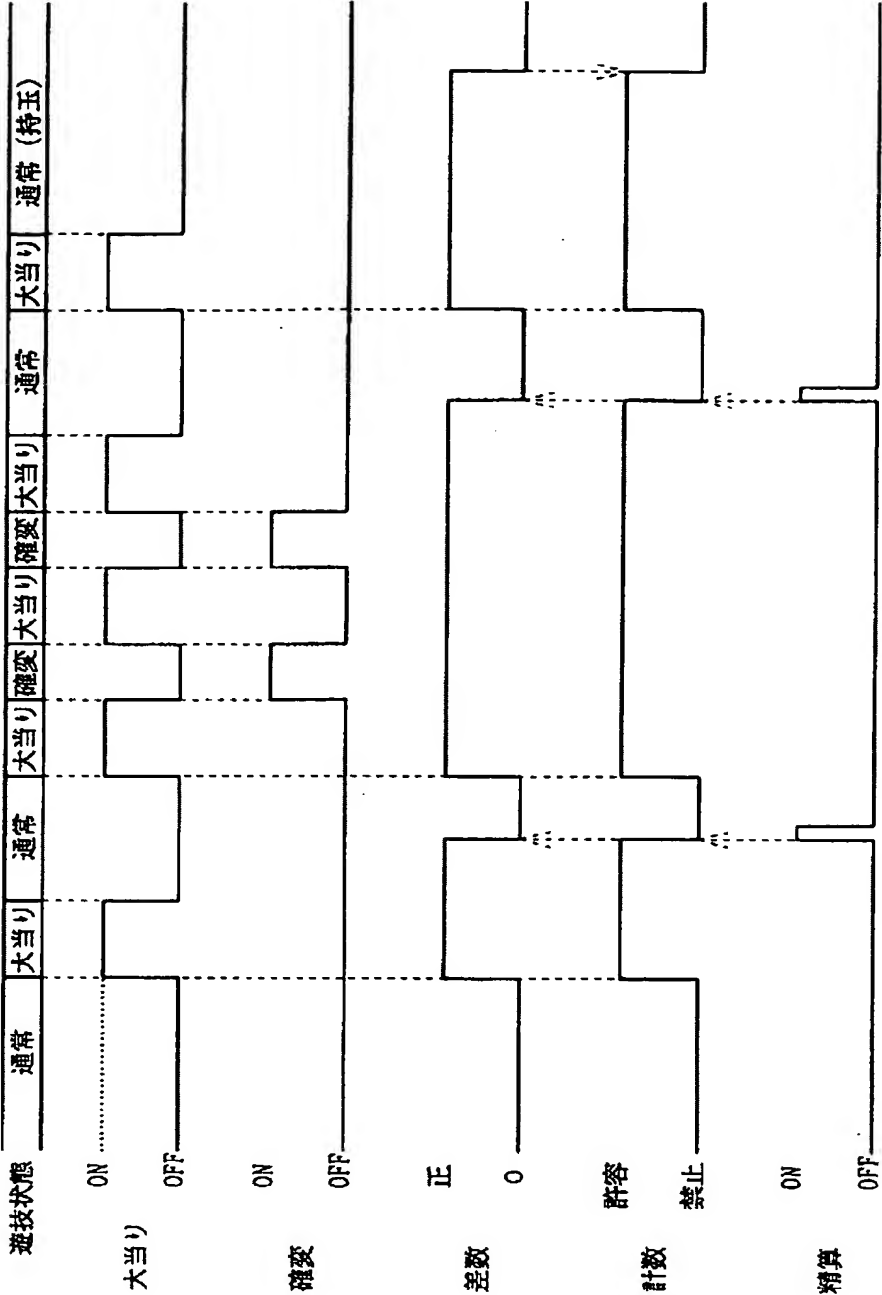
[Drawing 13]

| 会員ランク | 換金率 | ランク 基準 |
|-------|----------|--------------------------------|
| 第1ランク | 4. 0 円／玉 | 遊技時間が過去2ヶ月間で 300時間以上 |
| 第2ランク | 3. 5 円／玉 | 遊技時間が過去2ヶ月間で 150時間以上300時間未満 |
| 第3ランク | 3. 0 円／玉 | 遊技時間が過去2ヶ月間で 150時間未満 |

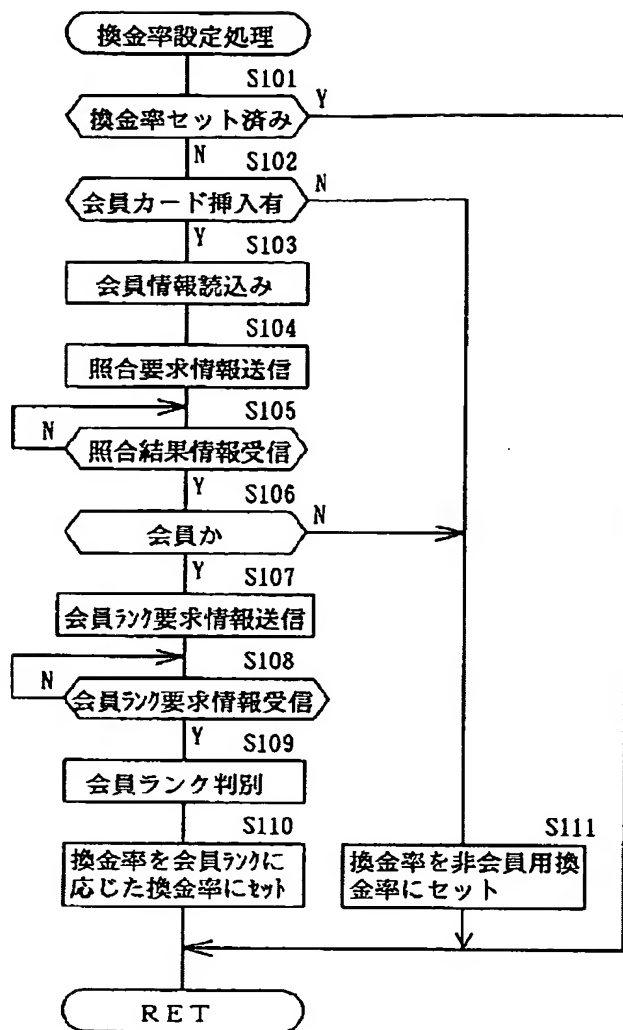
[Drawing 9]



[Drawing 12]



[Drawing 14]



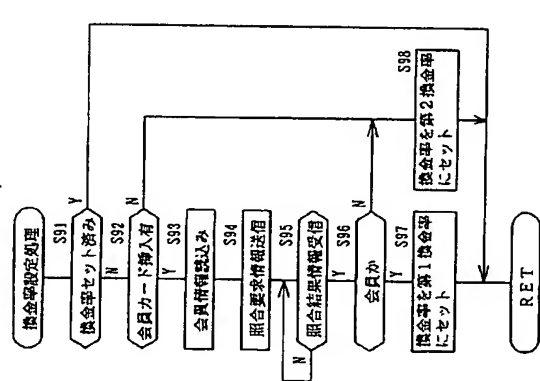
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| (21)出願番号 特願平9-170621 | (71)出願人 000144153 株式会社三共 群馬県桐生市境野町6丁目460番地 嶋川 昭八 群馬県桐生市相生町1丁目184番地の5 井理士 深見 久郎 (外2名) |
| (22)出願日 平成9年(1997)6月28日 | |

(54)【発明の名称】 遊技用装置

(57)【要約】
【課題】 遊技結果価値の品品交換率を用いて遊技者の興趣を向上させることを可能にする遊技用装置を提供することである。
【解決手段】 遊技者が会員であるか否かを判別し (S 92 ~ S 96)、遊技者が会員である場合には、遊技者が会員でない場合よりも遊技者にとって有利な換金率 (高い換金率) に換金率を決定する (S 97、S 98)。



(2) 1
【特許請求の範囲】
【請求項1】 遊技機での遊技の結果として遊技者の所
有となった遊技結果価値に対して品品交換率を定めるこ
とが可能な遊技用装置であって、
遊技者が予め定められた特典取得資格を有するか否かを
判別する資格判別手段と、
該資格判別手段の判別結果に応じて、遊技者の所有とな
った遊技結果価値の品品交換率を決定する品品交換率決
定手段とを含み、
該品品交換率決定手段は、遊技者が前記特典取得資格を
有する場合に、遊技者が前記特典取得資格を有しない場
合よりも遊技者にとって有利な品品交換率に遊技者所有
の遊技結果価値の品品交換率を決定することを特徴とす
る、遊技用装置。
【請求項2】 遊技者の所有となった遊技結果価値を特
定可能な情報および前記品品交換率決定手段により決定
された品品交換率を特定可能な情報を記録した記録媒体
を発行する記録媒体発行手段をさらに含むことを特徴と
する、請求項1記載の遊技用装置。
【請求項3】 前記特典取得資格を有する遊技者は、前
記特典取得資格内において、前記遊技結果価値の品品交
換率が異なる複数のランクのうちの何れかのランクを有
し、
前記品品交換率決定手段は、前記特典取得資格を有する
遊技者の品品交換率を決定する場合に、その遊技者の前
記ランクに応じて品品交換率を決定することを特徴とす
る、請求項1記載の遊技用装置。
【発明の詳細な説明】
【0001】
【発明の属する技術分野】 本発明は、遊技用装置に関
し、詳しくは、パチンコ遊技機、コイン遊技機、あるいは
は、スロットマシン等の各種の遊技機での遊技の結果と
して遊技者の所有となった遊技結果価値に対して品品交
換率を定めることが可能な遊技用装置に関する。
【0002】
【従来の技術】 この種の遊技用装置として従来から一般
的に知られているものに、たとえば、遊技機での遊技の
結果として遊技者の所有となったパチンコ玉等の遊技結
果価値に対して換金率等の品品交換率を定めることが可
能な遊技用装置があった。
【0003】 遊技機では、遊技機の機構毎に遊技結果価
値の品品交換率を異なる場合があった。この種の遊
技用装置においては、遊技者所有の遊技結果価値を計数
し、計数した遊技結果価値に対して遊技機の機構毎に品
品交換率を定める処理がなされていた。このような処理
は、各遊技機毎に行なわれる場合と、各遊技機設置場毎
に行なわれる場合とがあった。従来のこの種の遊技用装
置では、遊技の結果として遊技者の所有となった遊技結
果価値に対して定められる品品交換率が遊技機の機構毎
に一定であった。

(2) 2
【0004】
【発明が解決しようとする課題】 このように遊技機の機
構毎に品品交換率が異なるようにされていることによ
り、遊技結果価値の品品交換率の高低に対する遊技者の
関心が高くなってきている。このため、遊技者の興趣を
向上する点からは、遊技結果のみならず、遊技結果によ
り得られた遊技結果価値の品品交換率の高低によっても
左右されるものと考えられる。
【0005】 しかし、前述したように従来の遊技用装置
では、遊技の結果として遊技者の所有となった遊技結果
価値に対して定められる品品交換率が遊技機の機構毎に
一定であったため、その遊技機で遊技する遊技者間では
特典等で差をつけられたいため、品品交換率に基づいて
遊技者の興趣を向上させることができなかったというの
が実情であった。
【0006】 本発明は、係る実情に鑑み考え出されたも
のであり、その目的は、遊技結果価値の品品交換率を用
いて遊技者の興趣を向上させることを可能にする遊技用
装置を提供することである。
【0007】
【課題を解決するための手段】 請求項1に記載の本発明
は、遊技機での遊技の結果として遊技者の所有となった
遊技結果価値に対して品品交換率を定めることが可能な
遊技用装置であって、遊技者が予め定められた特典取得
資格を有するか否かを判別する資格判別手段と、該資格
判別手段の判別結果に応じて、遊技者の所有となった遊
技結果価値の品品交換率を決定する品品交換率決定手段
とを含み、該品品交換率決定手段は、遊技者が前記特典
取得資格を有する場合に、遊技者が前記特典取得資格を
有しない場合よりも遊技者にとって有利な品品交換率に
遊技者所有の遊技結果価値の品品交換率を決定すること
を特徴とする。
【0008】 請求項2に記載の本発明は、請求項1に記
載の本発明の構成に加えて、遊技者の所有となった遊技結
果価値を特定可能な情報および前記品品交換率決定手段
により決定された品品交換率を特定可能な情報を記録し
た記録媒体を発行する記録媒体発行手段をさらに含むこ
とを特徴とする。
【0009】 請求項3に記載の本発明は、請求項1に記
載の本発明の構成に加えて、前記特典取得資格を有する遊
技者は、前記特典取得資格内において、前記遊技結果価
値の品品交換率が異なる複数のランクのうちの何れかの
ランクを有し、前記品品交換率決定手段は、前記特典取
得資格を有する遊技者の品品交換率を決定する場合に、
その遊技者の前記ランクに応じて品品交換率を決定する
ことを特徴とする。
【0010】
【作用】 請求項1に記載の本発明によれば、資格判別手
段の働きにより、遊技者が予め定められた特典取得資格
を有するか否かが判別される。品品交換率決定手段の働

の係員などが遊技場内を巡回して待玉遊技終了条件の成立している遊技機をチェックしたり、遊技レールを無視して遊技を行なう者がいないかどうかをチェックをしたる手間が省ける。

【0028】さらに、この実施形態では、遊技者が他人から譲渡されたパチンコ玉や他の遊技機で所有したパチンコ玉を玉箱5に投入して計数すること防止するべく、遊技者が遊技機6での遊技の結果として玉箱5、上皿6b、下皿6cなどに所有していると考えられるパチンコ玉数（計数されていないパチンコ玉数）が早出され、遊技者が遊技の結果所有したすべてのパチンコ玉（以下、待玉ともいう）を計数済であると判断できる場合には玉計数レバー5aのスライド操作が不能動化されるように構成されている。

【0029】これにより、たとえば、換金率の異なるパチンコ玉が他の遊技機や遊技機設置島などから持ち込まれて計数されてしまうことなどを防止でき、さらに、遊技が行なわれることなく不正に持ち込まれたパチンコ玉が計数されてしまう不都合をも防止できる。

【0030】図2は、遊技機設置島1に設置された遊技機6と玉箱5との関係を説明するための要部断面図であり、遊技機6は、遊技機設置島1と遊技支持部1eにより固定されている。また、玉箱5は、玉箱取付部1dを介して固定ピン54により遊技機設置島1に固定されている。

【0031】上皿6bには、玉返却口3aから供給されたパチンコ玉を打球発射位置へ案内するための上皿通路63が設けられている。上皿通路路63は、パチンコ玉を打球発射位置へ導くために緩やかに傾斜しており、その最下端位置に上皿玉検出器64が設けられている。この上皿玉検出器64は、上皿通路路63にパチンコ玉が残っているか否かを検出するために利用される。

【0032】下皿6cには、上皿6bからオーバーフローしたパチンコ玉や遊技機6aにまで到達しなかったフアル玉を一時的に貯留するための下皿玉貯留部61が形成されている。下皿玉貯留部61の下方には、下皿玉貯留部61内のパチンコ玉を玉箱5へ案内するための開口が設けられており、この開口が下皿玉抜レバー60と一体的に形成された抑止片で閉塞されている。そして、下皿玉抜レバー60をスライド操作することにより、この開口が開放されて下皿玉貯留部61内のパチンコ玉が玉箱5へ落入する。62は、下皿玉貯留部61に残留しているパチンコ玉を排出するための下皿玉検出器である。

【0033】玉箱5には、下皿6cから落入したパチンコ玉を貯留するための玉箱部50が形成されている。玉箱部50の側部下方には、計数レバー5aと一体的に形成された抑止片で閉塞される開口が設けられている。そして、計数レバー5aをスライド操作することにより、開口の閉塞が解かれて玉箱部50内の貯留玉が開口から整

【0039】遊技機6から制御装置10へは、各種遊技情報、上皿検出情報、下皿検出情報等がそれぞれ出力される。特に図示する遊技情報は、遊技機6の遊技制御基板（図示省略）から出力される。遊技制御基板から出力される遊技情報には、大当りの発生および大当り制御の終了を示す大当り情報、確変の発生および終了を示す確変情報などの各種情報が含まれる。制御装置10は、これらの大当り情報、確変情報などの遊技情報により、遊技機6の遊技状態を把握する。

【0040】払出玉検出器12から制御装置10へは、遊技情報の一例となる払出玉検出情報が入力される。払出玉検出器12は遊技者が払出したパチンコ玉を検出するものである。払出玉検出器12は、遊技機6の貫珠玉貸装置（図示省略）に設けられており、貫珠の場合のみ払出玉検出情報が制御装置10へ出力されるように構成されている。

【0041】払出玉検出器13から制御装置10へは、遊技情報の一例となる払込玉検出情報が入力される。払込玉検出器13は遊技機6の遊技領域6aに打ち込まれたパチンコ玉を検出するものである。払込玉検出器13は、たとえば、遊技機6の玉群出樋（図示省略）と遊技機設置島1の玉回収樋（図示省略）との間に設けられている。

【0042】制御装置10は、たとえば大当り情報または確変情報が入力されたことに基づいて、払込玉検出情報および払出玉検出情報のカウンタ動作を開始して遊技機6で遊技に使用されたパチンコ玉の数（払込玉数）と、遊技機6から遊技者に払い出されたパチンコ玉の数（払出玉数）とを待定する。そして、この払込玉数と払出玉数とから遊技者が遊技の結果所有した待玉数である差数を算算する。

【0043】差数=払出玉数-払込玉数
この差数が0よりも多い場合には、遊技者は遊技による利益を得ていると判断できる。

【0044】なお、パチンコ玉の一部が遊技途中で精算された場合には、精算後の差数は、
精算後の差数=精算前の差数-精算された玉数（精算時の計数値）
となる。すなわち、差数は、遊技の開始から精算が行なわれるまでの間に遊技者が遊技の結果所有したパチンコ玉数である。

【0045】さらに、制御装置10は、この差数から内部に記憶している計数値（待点）を差し引いて、遊技者が遊技で所有した待玉のうち、未だ計数操作をすることなく玉箱5、上皿6b、下皿6cなどに貯留させていると考えられるパチンコ玉数を計算する。説明の都合上、このパチンコ玉を未計数玉と呼ぶ。

【0046】計算上の未計数玉の数=差数-計数値（待点）

差数が0よりも多く、また、計算上の未計数玉の数が少

なくとも0よりも多い場合には、遊技の結果遊技者の所有となった待玉であって遊技者が待点に変換していないパチンコ玉が玉箱5などに残っているものと判断でき、そこでこの場合には、制御装置10は、計数許容情報（図示省略）を玉箱5の制御用マイクログコンピュータ5cへ出力する。制御用マイクログコンピュータ5cは、計数許容情報を入力されていることに基づいて、ソレノイド5dを動作させ、玉計数レバー5aのスライド操作を許容する。これにより、遊技者は、玉計数レバー5aをスライド操作して玉箱5内のパチンコ玉を待点に変換することが可能となる。

【0047】一方、差数が0以下の場合には、遊技者は遊技による利益を得ておらず、パチンコ玉の計数を許容する必要はないと判断できる。そこでこの場合には、制御装置10は、計数禁止情報を玉箱5の制御用マイクログコンピュータ5cへ出力する。制御用マイクログコンピュータ5cは、計数禁止情報が入力されていることに基づいて、ソレノイド5dを消磁し、玉計数レバー5aのスライド操作を禁止する。これにより、他店から持ち込まれたパチンコ玉や他人から譲渡されたパチンコ玉が計数されてしまうことが防止される。

【0048】ところで、未計数玉の数が0未満となることは、現実には考えられない。玉箱5などに負数のパチンコ玉が存在することはありまいからである。しかしながら、貸玉の存在などにより計数値が差数よりも多少多くなって計算上の未計数玉の数（差数-計数値）が負数となる場合がある。さらに、この計算上の未計数玉の数が負数となっても、実際には、まだ未計数玉が残っている可能性がある。そこで制御装置10は、計算上の未計数玉の数が0未満となっている場合でも所定の許容範囲内で計数を許容し、計数許容情報を玉箱5の制御用マイクログコンピュータ5cへ出力する。

【0049】一方、計算上の未計数玉の数が、所定の許容範囲外である負数となる場合には、たとえば、玉貸動作が必要以上に行なわれて、貸玉ばかりが大量に計数され続けている、不正に持ち込まれた多量のパチンコ玉が計数されている可能性がある。差数はさほど大きくないにもかかわらず、計数値のみが異常に大きくなるためである。

【0050】そこでこのような場合には、異常または遊技者の不正が発生しているものとなして、エラー報知情報を呼出・発行装置2などへ出力する。これにより、エラー報知が呼出・発行装置2で行なわれる。さらに、制御装置10は、計数禁止情報を玉箱5の制御用マイクログコンピュータ5cへ出力して、計数操作を禁止する。

【0051】また、制御装置10は、大当り情報または確変情報が入力されている間は、差数の大きいかににかかわらず、計数許容情報を玉箱5の制御用マイクログコンピュータ5cへ出力する。制御用マイクログコンピュータ5cは、計数許容情報が入力されていることに基づい

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て、玉計数レバー5 aのスライド操作を許容する。これにより、遊技者は、玉計数レバー5 aをスライド操作し玉箱5内のパチンコ玉を待点に変換されることが可能となる。大当り情報または確変情報が入力されている、玉計数レバー5 aのスライド操作を許容するのは、通常、玉計数レバー5 aのスライド操作によって有利な遊技状態においては、遊技者に多量のパチンコ玉が引出されることが予想されるためである。

【0052】呼出・発行装置2から制御装置10へは、操作情報が入力される。操作情報は、出玉カード発行スイッチ2 cの押圧操作に基づいて出力される情報である。制御装置10は、操作情報の入力に基づいて遊技者に付与すべき出玉数および換金率を算出し、これをカードR/W制御情報に含めて呼出・発行装置2へ出力する。呼出・発行装置2は、このカードR/W制御情報の入力に基づいて出玉カードを出玉カード発行口2 cから発行する。出玉カードが発行されれば、その旨がカードR/W情報として呼出・発行装置2から制御装置10へ出力される。これにより、制御装置10は出玉カードの発行処理が終了して、精算が終了したことを把握する。そして、遊技者がすべての待玉の精算を終了しているとして、遊技者が玉箱5 cへ出力する。これにより、遊技者が終了された遊技6で、他人から譲渡されたパチンコ玉や他の遊技機で所有したパチンコ玉、あるいは、不正に持ち込んだパチンコ玉が計数されてしまうことが防止できる。

【0053】上面検出情報は、上面6 bに設けられた上面玉検出器6 4から出力される情報である。また、下面検出情報は、下面6 cに設けられた下面玉検出器6 2から出力される情報である。制御装置10は、これらの検出情報により、上面6 bまたは下面6 cにパチンコ玉が残っているかを否かを把握する。

【0054】会員カード8から制御装置10へは、会員番号等の会員カードから読出された情報が入力される。会員番号は、会員のシリアルナンバーであり、各会員カードに記憶されているとともに管理コンピュータ200にも記憶されている。管理コンピュータ200は、主として会員番号に基づいて会員の個人情報管理する。

【0055】制御装置10は、遊技機6から入力される各種遊技情報により遊技機6の遊技状態を監視し、設定されている待玉遊技方式に応じた制御を行ない、待玉遊技を許容すべきものかを判断する。そして、大当り制御の終了などにより待玉遊技を禁止すべき状態となれば停止指令信号を遊技機6に出力する。遊技機6には、停止指令信号を入力するための入力端子（図示省略）が設けられている。停止指令信号が入力端子に入力されれば、遊技機6の打球操作ハンドルを駆動する駆動モータの駆動が停止され、遊技機6が遊技不能動状態となる。

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具体的には、打止指令信号が入力されると打球操作ハンドルを駆動する駆動モータの電力供給をON/OFFするリレーが作用して電力の供給をOFFにする。それにより駆動モータは停止する。さらに制御装置10はスピーカー7に音声信号を出力する。これによりスピーカー7からは、パチンコ玉を精算しなければ遊技を続行できない旨の報知音が発せられる。遊技者がこの報知に応じて玉計数レバー5 aなどを操作してパチンコ玉の精算処理を実行すれば、制御装置10から呼出・発行装置2にカードR/W制御情報が出力され、呼出・発行装置2の出玉発行口2 bから出玉カードが発行されて精算処理が終了する。制御装置10は、呼出・発行装置2からカードR/W情報を受信することによりその旨を把握し、打止指令信号の出力を停止する。これにより、遊技機6の打球操作ハンドルを駆動する駆動モータが駆動可能となり、遊技不能動状態が解除される。具体的には、上述のリレーが作用して電力の供給をONにすることにより駆動モータが駆動可能な状態になる。

【0056】また、制御装置10は、会員カードリーダー8から入力された会員情報に基づいて会員カードを使用している遊技者が会員であるかを否かの判断を行なうために、会員情報の照会を要求する照会要求情報（管理コンピュータ200に送信する。その照会要求情報には、会員情報の照会を求める旨を示す情報および照会の対象となる会員番号等の会員情報が含まれる。また、会員カードリーダー8から制御装置10には、会員カード8の動作状態を示す動作状態情報が与えられる。この動作状態情報に基づいて、制御装置10は、会員カードリーダー8に会員カードが挿入されているかを否かを判断可能である。さらに、制御装置10は、会員カードリーダー8に会員カードが挿入されている場合に、会員利用情報を送信する。その会員利用情報には、会員を特定する会員番号の情報および会員が現在遊技機6をしている旨を示す情報が含まれている。

【0057】管理コンピュータ200では、照会要求情報を受けた場合に、照会対象の会員情報と、管理コンピュータ200において管理している会員情報とを照合し、その照会結果を示す照会結果情報を制御装置10へ返信する。そして、制御装置10では、照会結果情報に基づいて、遊技者が会員であるかを否かを照合し、制御装置10から会員カードリーダー8へは制御情報が入力される。この制御情報には、会員カードリーダー8における情報の読出し動作を制御するための動作制御情報が含まれる。また、管理コンピュータ200では、会員利用情報に基づいて、会員の遊技機の使用時間である遊技時間を累積記憶し、過去2ヶ月間の遊技時間を会員毎に求めて会員の利用状況を管理する等、会員の各種個人情報管理する。

【0058】玉返却装置3から制御装置10へは、玉返却スイッチ情報およびモード変更情報が出力される。玉

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返却スイッチ情報は、玉返却スイッチ3 bの押圧操作に基づいて出力される情報であり、モード変更情報は自動返却スイッチ3 cの押圧操作に基づいて出力される情報である。制御装置10は、玉返却スイッチ情報の入力に基づき、特点が存在することを条件に特点から所定値を引き落として玉返却装置3に玉返却装置制御情報の一例となる玉返却コマンドを出力する。玉返却装置3は、この玉返却コマンドに基づいて所定個数のパチンコ玉を玉返却口3 aから上面6 bに返却する。また、制御装置10は、玉返却モードを入力に基づき、玉返却装置3の玉返却モードを手動から自動玉返却モードへ、自動的に玉返却モードが自動玉返却モードへ、交互に変更する。玉返却モードが自動玉返却モードとなった場合には、玉箱検出情報、上面検出情報、下面検出情報のいずれもが制御装置10に入力されないことを条件に自動的に玉返却コマンドが玉返却装置3に出力される。

【0059】また、制御装置10は打止指令信号を出力中の場合には、玉返却装置3へ玉返却装置制御情報の一例となる、玉返却禁止コマンドを出力する。これにより、玉返却装置3では打止期間中、玉の返却動作が禁止される。

【0060】遊技機6から呼出・発行装置2へは、玉詰まり、その他の遊技機6の異常発生を表す遊技情報が出力される。呼出・発行装置2はこれらの情報種類に応じて呼出表示部2 aを点灯あるいは点滅させる。

【0061】図4は、制御装置10のブロック図である。制御装置10は、制御プログラム104 aの記憶されたROM104、払出玉カウンタ103 a、打込玉カウンタ103 b、計数値カウンタ103 c、遊数カウンタ103 dなどの各種演算用カウンタの記憶されたRAM、各種演算処理を実行するCPU100、各種情報を入力する入力ポート101、各種情報を入力する出力ポート102、LED回路106、音声合成回路105などから構成されている。

【0062】CPU100は、入力ポート101に入力される各種情報に応じ、ROM104に記憶された制御プログラム104 aに従い以下の処理を実行する。

【0063】大当り情報の入力により大当り制御が開始したことを把握し、大当り情報の入力停止により大当り制御が終了したことを把握する。確変情報の入力により確変が開始したことを把握し、確変情報の入力停止により確変が終了したことを把握する。

【0064】上面検出情報の入力の有無に基づいて上面6 bにパチンコ玉が残っているかを否かを把握する。下面検出情報の入力の有無に基づいて下面6 cにパチンコ玉が残っているかを否かを把握する。玉箱検出情報の入力の有無に基づいて玉箱5にパチンコ玉が残っているかを否かを把握する。

【0065】計数情報の入力に応じて計数値カウンタ103 cのカウント値を加算更新するとともに、そのカウ

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ント値を特点として玉箱5の玉数表示部5 bに表示させるためのLED情報、LED回路から出力ポート102を介して出力する。また、入力ポート101に大当り情報や確変情報が入力されている場合、または、遊数が0よりも多い場合には、打込玉検出情報の入力に応じて打込玉カウンタ103 bのカウント値を減算更新し、払出玉検出情報の入力に応じて払出玉カウンタ103 aのカウント値を加算更新する。そして、払出玉カウンタ103 aのカウント値から打込玉カウンタ103 bのカウント値を減算し、その値を遊数カウンタ103 dのカウント値として記憶する。

【0066】操作スイッチ（出玉カード発行スイッチ）2 cが操作されたことに基いて入力される情報に応じて、計数値カウンタ103 cのカウント値に基づいた精算処理のためにカードR/W処理を実行する。すなわち、計数値カウンタ103 cのカウント値および換金率を含むカードR/W制御情報を出力ポート102から呼出・発行装置2へ出力した後、遊数カウンタのカウント値から計数値カウンタ103 cのカウント値を減算した値を新たな遊数カウンタのカウント値として記憶する。そして、その後、計数値カウンタ103 cのカウント値をリセットする。

【0067】玉返却スイッチ3 bが操作されたことに基いて入力される情報に応じて、計数値カウンタ103 cのカウント値を減算更新し、出力ポート102から玉返却装置制御情報を玉返却装置3へ出力する。

【0068】カードR/W情報の入力に基づいて、出玉カードが正常に発行されたかを否かなど、呼出・発行装置2の制御状況を把握する。

【0069】さらに、遊数カウンタ103 dのカウント値が0未満の場合には出力ポート102から計数禁止情報を出力する。遊数カウンタ103 dのカウント値が0以上の場合には、遊数カウンタ103 dのカウント値から計数値カウンタ103 cのカウント値を差し引いて未計数玉数を演算する。そして、未計数玉数が前述した所定の許容値（所定の負数でたとえば-100）よりも大きい場合には計数許容情報を、前記所定の許容値未満の場合には計数禁止情報を、それぞれ出力ポート102から出力する。なお、大当り情報または確変情報が入力ポート101に入力されている間は、無条件に計数許容情報を出力する。これらの、計数許容情報または計数禁止情報の出力タイミングに関する制御は、計数許容禁止プログラム104 cに従って実行されている。また、入力ポート101に入力される設定情報に基づいて待玉遊技方式を把握する。そして、ROM104に記憶されている制御プログラム104 aの中からその方式に応じた打球禁止解除プログラム104 bを実行する。すなわち、待玉遊技方式に応じて定められた待玉遊技終了条件が成立すれば、出力ポート102から打止指令信号を出力する。そして、遊数カウンタ103 dのカウント値である

差値と、計数値カウンタ103 cのカウント値である計数値とを利用して、遊效の結果として遊技者に与えられるハチンゴ玉の大部分がすでに玉箱から回収され、計数されていぬ否かを判断する。より具体的には、たとえば、「計数値±差値-20」の関係を成立するかどうかを判断する。この判断により、遊技者が遊技ルールに依拠することを判断する。遊技機6で「計数値±差値-20」から否かを把握できる。そして、「計数値±差値-20」の関係が成立する場合には遊技者が精算動作をしているものとみなし、打止指令信号の出力を停止する。これにより、遊技機6での電線接続が許容されることとなる。一方、「計数値±差値-20」の関係が成立しない場合には遊技者が精算動作をしていないものとみなし、音声合成回路105から出力ポート102を紹介して音声情報を出す。これによりスピーカ7から、精算動作を要する報知が行なわれ、遊技者102からカードR/精算動作を行なえば、出力ポート102からカードR/精算動作が出力される。そして、呼出・発行装置2に玉箱カードが発行されたことがカードR/精算報の入力により把握されれば、払出玉カウンタ103 a、打込玉カウンタ103 b、計数値カウンタ103 cのカウント値をリセットし、打止指令信号の出力を停止する。ここで「計数値±差値-20」としたのは、遊技者が玉を認めて遊技機外へこぼしてしまったり、貫珠の払い出し時にその貫珠が釣り余って上皿皿から飛び出すことなど、の不測の差数の変化に対応するためである。

る照会要求情報を出力ポート102から出力する。さらに、出力した照会要求情報に応答する照会結果情報が入力ポート101に入力された場合に、照会結果情報に基きつて、遊技者が真の会員であるか否かを判断する。そして、真の会員が遊技を行なっている場合と、遊技者が真の会員が遊技を行っていない場合または遊技者が真の会員ではないと判断された場合とのいずれに該当するかを判断する。真の会員が遊技を行なっている場合には、パチンコ玉の換金率を会員の第1の変換率に決定し、一方、遊技者が会員が会員カードを使用していない場合には遊技者が真の会員ではないと判断されたい場合には、パチンコ玉の換金率を第1の変換率よりも低い非会員の第2の変換率に決定する。そして、決定された換金率についての情報をパチンコ玉の計数値の情報とともにカードRのメモリに記憶する。出力ポート102より出力する。

ノ制訂情報に含めて遊技場により異なる場合があるのて、設定部11にて設定操作をすることにより、遊技場の経営方針に合わせて容易に変更可能である。

【0072】図5〜図11は、制御装置100のCPU100により実行される各種制御内容の説明するためのフローチャートである。以下に説明するフローチャートに基き制御プログラムが、制御装置100のROM104内に制御プログラム104a（図4参照）として記憶されている。

【0073】まず、図5(a)は、メイン処理の処理手順を説明するためのフローチャートである。まず、S1においてポート入力処理が実行される。ポート入力処理は、各種情報を入力ポート101(図4参照)より入力する処理である。

30 【0074】次にS2では、カウント処理が実行される。このカウント処理は、払込玉と打込玉とを計数するための処理である。詳細については図6(a)で後述する。

【0075】次にS3に進み、カードR/V処理が実行される。カードR/V処理は、呼出・発行装置2（図3参照）から入力された操作情報に基づいて呼出・発行装置2へカードR/V制御情報を出力するための処理である。この処理が実行されることにより、呼出・発行装置2の出力カード発行口2cから出玉カードが発行される。詳細については図11で後述する。また、出玉カードの発行後、計数値カウンタ103c（図4参照）のカウンタ値が0にリセットされる。

【0076】次にS4に進み、玉返却処理が実行される。玉返却処理は、玉箱5の玉数表示部5bに表示されている計数値を引落して玉返却口3aから上面6bにパチンコ玉を返却させるための処理である。詳細については図8で後述する。

【0077】次にS5に進み、打止禁止・解除処理が実行される。打止禁止・解除処理は、遊技機6を打止状態にするとともに、その状態を解除させるための処理であ

る。詳細については図5(b)で後述する。次にS6に
進み、計数許容・禁止処理が実行される。計数許容・禁
止処理は、遊技状況に応じて計数許容情報または計数禁
止情報を出力するか否かの判断などを行なう処理であ
る。この処理に関する制御プログラムは、制御装置10
のROM104内に計数許容禁止プログラム104c
(図4参照)として記憶されている。計数許容・禁止処
理の詳細については図9で後述する。

【0078】次にS7に進み、計数処理が実行される。計数処理は、玉箱5の玉計数レバー5aがスライド操作されて回収されたパズル玉数を計数する処理である。整流通路55（図2参照）に設けられた玉計数器52（図2参照）の検出力に基づいてこの処理が実行される。

【0079】次にS8に進み、会員カード処理が実行される。会員カード処理は、会員カードリーダー8の動作制御および会員利用情報を送信するための処理である。会員カード処理においては、会員カードが会員カードリーダー8に挿入されると、会員カードから会員番号等の記憶情報を読出するための動作を実行させる制御を行ない、遊技終了の際の精算時に会員カードを排出させる動作を実行させる制御を行なう。また、さらに、会員カード処理においては、会員カードが会員カードリーダー8に挿入されている場合には、前述した会員利用情報を管理コンピュータ200に向けて送信する処理を実行する。

【0080】次にS9に進み、換金率設定処理が実行される。換金率設定処理は、遊技機6を使用している遊技者が会員であるか非会員であるかに応じて換金率を決定する処理である。詳細については図10で後述する。

〔0081〕S9で換金率設定処理が終了した後、すべての処理が終了する。図5（b）は、打止禁止・解除処理の処理手順を説明するためのフローチャートである。

まず、S51において、各カウンタがチェックされる。次にS53に進み、変数が0であるか否かが判断される。具体的には、変数カウンタ103dのカウント値が0であるか否かが判断される。変数が0の場合には処理が終了する。一方、変数が0でない場合にはS54に進む。

【0082】S54では、設定の読込処理が実行され

された設定情報と読み込み処理である。次に \$S55\$ に達する設定の読み込み処理は、設定部 11 (図 3 参照) で実行される。設定部 11 は、設定情報 11 の内容に応じて処理が分岐する。すなわち、設定値が「1」の場合には、\$S56\$ に進む。1 回交換処理が実行される。すなわち、設定部 11 で設定値を「1」に設定することにより待玉遊技方式が 1 回交換方式に設定されることになる。1 回交換処理の処理手順については図 6 (b) で後述する。設定値が「2」の場合には、処理が \$S57\$ に進む。確変アップ処理が実行される。すなわち、設定部 11 で設定値を「2」に設定することにより待玉遊技方式が確変アップ

方式に設定されることとなる。随来ラッキー処理の処理手順については図7で後述する。設定値が「3」の場合には、処理が終了する。すなわち、設定部11で設定値を「3」に設定することにより禁止遊技方式が無制限方式に設定されることとなる。なお、設定部11で設定値を「4」に設定することにより禁止遊技方式がラッキーナンバー方式に設定されることでは、その処理手順の詳細な説明を省略している。

【0083】図6(a)は、カウント処理の処理手順を説明するためのフローチャートである。まず、S20において、遊技機6の遊技状態が当り中もしくは確変中のいずれかにあるか否かが判断される。遊技状態がいずれにも該当しない場合には後述するS26に進む。

【0084】一方、遊技状態が当り中もしくは確変中である場合にはS21に進み、払出玉検出情報が入力されているか否かが判断される。払出玉検出情報が入力されている場合には、S23に進み、払出玉カウンタ103aのカウント値を更新(+)する。そしてS22に進み、一方、S21で払出玉検出情報が入力されていない場合には、そのままS22に進出する。

【0085】S22では、打玉演出情報が入力されているか否かを判断される。打玉演出情報が入力されていない場合には処理が終了する。一方、打玉演出情報が入力されている場合には、S24に進む。S24では、打玉カウンタ103bのカウント値が更新（+1）される。そして、S25に進む。

【0086】S25では、差数演算、記憶処理が実行される。差数演算、記憶処理が実行されることにより、差数が演算される。すなわち、払出玉カウンタ103aのカウント値から打込玉カウンタ103bのカウント値を減算した値が差数カウンタ103dのカウント値として記憶される。そして、その後処理が終了する。

【0087】一方、S20でNOの判断がなされた場合は、S26に処理が移行する。S26では、差数が0よりも大きいか否かの判断がなされる。なお、差数は、差数カウンタ103dのカウント値から計数値カウンタ103cのカウント値を減算することにより算出される。そして、差数が0よりも大きい場合には前記S21以降に進み、私出玉検出部または打玉検出部への入

力に依りて私出玉カウティング103aまたは打込玉カウティング103bのカウティング更新 (+1) される。なお、103aまたは103bのカウティング更新 (+1) される。現実には、差数が0より小さくなることは、避けて開始した後、大当りや確変が発生して以降である。一般に大当りなどの発生前は、選択者に利益がでないように遊技機が調整されているためである。したがって、大当りや確変がすでに発生していることを前提として初めてS26でYESの判断がなされることになる。

【0088】一方、S26で差数が0未満であると判断された場合には、前記S21から前記S24までの各処理は実行されることがなく、前記S25に進み、差数演算

・記帳処理が実行され、その後、処理が終了する。

【0089】この処理手順によると、打込玉や払出玉のカウンタ(S21、S24)が行なわれ、大当りや確変の発生中もしくは確変中の場合(S20)か、または、大当りや確変の発生後(大当りや確変の発生後は、一般的に差数>0が成立するのでS26でYESの判断がなされる)となる。つまり、大当りや確変といった、遊技者にとって有利な遊技状態の発生後に初めて打込玉や払出玉のカウンタ(S21、S24)が行なわれる。言い換えば、大当りや確変の発生前は、打込玉や払出玉のカウンタ(S21、S24)が行なわれない。その理由は、以下のとおりである。

【0090】前述したとおり、大当りや確変の発生前は、遊技者に利益がでないように遊技機が調整されているため、もし、その間で差数を減算すると負数となる。打込玉数が払出玉数よりも多くなるためである。ところで、差数が負数となる状態にあっても、遊技者は玉貸操作により新たに玉を貸り受けて遊技を継続できる。したがって、遊技中に数多くの入賞玉が発生するなどして払出玉数が増加しない限り、打込玉数の増加に伴って、差数が負の方向へどんどん大きくなる。

【0091】ここで、大当りや確変の発生前において、払込玉や払出玉のカウンタ(S21、S24)を行なって差数を算出した結果、遊技者の差数がたとえは5000となっている状況を考える。なお、1回の大当りの発生により払い出されるパチンコ玉数の上限をたとえば2400個と仮定する。

【0092】この状況下において大当りが発生して遊技者が2400個程度のパチンコ玉を玉箱5に所有する場合となつたとしても、差数は依然正数となつていないことが考えられる。前述したとおり、制御装置10は、差数が0以下の場合には、計数操作を禁止するように構成されている。したがって、遊技者がパチンコ玉の計数を望み場合であっても、制御装置10は、差数≤0であるために遊技者は持玉を所有していないものとみなし、遊技者にパチンコ玉の計数操作を許可する必要はないと判断してしまふ。このため、玉計数レバー5aのスライド操作が禁止されてパチンコ玉の計数をこなることができなくなるといふ不都合が発生する。

【0093】大当りや確変の発生前においても、打込玉や払出玉のカウンタ(S21、S24)を行なって差数を算出した結果、差数が負の方向へどんどん大きくなるにつれて、その後2回、3回と大当りが連続して発生したとしても玉計数レバー5aのスライド操作が禁止されてしまふことも考えられ、玉箱5に貯留されたパチンコ玉が遊技中に外へ溢れだしてしまふおそれもある。【0094】このように、大当りや確変の発生前に、打込玉や払出玉のカウンタ(S21、S24)を行なうと、差数が負数となる可能性が高くなり、差数が負数となると、制御装置10による計数の許可判断に運用上

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の不都合が生じてしまふ。

【0095】そこで、このカウンタ処理では、大当りの発生中もしくは確変中の場合か、または、大当りや確変の発生後にのみ、打込玉や払出玉のカウンタが行なわれ、大当りや確変の発生前といった、差数が負数になる可能性のある遊技状態では打込玉や払出玉がカウンタされないものである。これにより、差数が負数となることを防止でき、差数が負数となることに起因して前記種々の不都合が発生することを防止できる。

【0096】図6(b)は、1回交換処理の処理手順を説明するためのフローチャートである。まず、S560において、大当り終了時(大当り制御終了時)であるか否かが判断される。大当り終了時でない場合には、後述するS562に進む。一方、大当り終了時である場合には、S561に進む。S561では、打止信号(打止指令信号)が出力される。すなわち、持玉遊技方式が1回交換方式の場合には、前記S560で大当り終了時と判断されることにより、前述した持玉遊技終了条件が成立することになる。

【0097】次にS562に進み、計数値カウンタ103c(図4参照)の計数値がチェックされる。次にS563に進み、計数値が差数から20を差引いた値以上であるか否かが判断される。なお、差数は、図5(a)のS25で算出された値で、遊技者が所有している持玉数を表わす。したがってこのステップにより、遊技者の持玉のほとんどが既に玉箱5から回収され計数されているか否か、すなわち、遊技ルールに従って遊技者が計数レバー5bを操作して精算動作をしているか否かが判断される。そして、差数から20を差引いた数以上のパチンコ玉が計数されている場合には、S566aに進み、出玉カードの発行を終了したか否かが判断される。出玉カードの発行が終了していない場合には、処理が終了する。一方、出玉カードの発行が終了している場合には、S566bに進む。S566bでは、打止信号が停止される。これにより、遊技機6の遊技不能動状態が解除される。次にS567に進み、払出玉カウンタ103a、打込玉カウンタ103b、計数値カウンタ103cのカウント値がリセットされ、処理が終了する。

【0098】一方、S563で計数値が差数から20を差引いた値よりも小さい場合には、S564に進む。S564では、上面検出情報、下面検出情報、玉箱検出情報のうち、いずれかの検出情報が入力されているか否かが判断される。これにより、上面6b、下面6c、玉箱5のいずれかにパチンコ玉が残留しているか否かが判断されることになる。そして、いずれの検出情報も入力されていない場合には、前述したS566aに処理が移行する。一方、S564でいずれかの検出情報が入力されている場合にはS565に進み、スピーカ7に交換要求音声報知信号が出力される。これにより、スピーカ7から玉計数レバー5aの操作を促す報知音が生じ、0よりも大きな

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れる。そしてその後、処理が終了する。

【0099】図7は、確変ラッキークー処理の処理手順を説明するためのフローチャートである。まず、S570において遊技機6が大当り終了時(大当り制御終了時)であるか否かが判断される。大当り終了時でない場合には、後述するS571bに進む。一方、大当り終了時である場合にはS571aに進む。

【0100】S571aでは確変情報が入力されているか否かが判断される。すなわち、遊技機6が確変状態にあるか否かが判断される。そして確変状態にある場合にはS572に進む。一方、確変状態でない場合にはS572に進む。

【0101】S571bでは、大当り情報もしくは確変情報のいずれか一方が入力されているか否かが判断される。入力のない場合は後述のS573に進む。一方、入力のある場合は、この処理を終了する。

【0102】S572では、打止情報が入力される。すなわち、持玉遊技方式が確変ラッキークー方式の場合には、前記S571aで確変情報が入力されていると判断されることにより、前述した持玉遊技終了条件が成立することになる。

【0103】次にS573に進み計数値がチェックされる。次にS574に進み、計数値が「差数-20×(種変が開始してから終了するまでに発生した大当り回数)」以上であるか否かが判断される。

【0104】そして、「差数-20×(種変が開始してから終了するまでに発生した大当り回数)」以上のパチンコ玉が計数されている場合には、S577aに進み、出玉カードの発行を終了したか否かが判断される。出玉カードの発行が終了していない場合には、処理が終了する。一方、出玉カードの発行が終了している場合には、S577bに進む。S577bでは、打止信号が停止される。これにより、遊技機6の遊技不能動状態が解除される。次にS578に進み、払出玉カウンタ103a、打込玉カウンタ103b、計数値カウンタ103cのカウント値がリセットされ、処理が終了する。

【0105】一方、S574でNOの判断がなされた場合には、S575に進む。S575では、上面検出情報、下面検出情報、玉箱検出情報のうち、いずれかの検出情報が入力されているか否かが判断される。そして、いずれの検出情報も入力されていない場合には、前述したS577aに処理が移行する。一方、S575でいずれかの検出情報が入力されている場合にはS576に進む。S576に交換要求音声報知信号が出力される。これにより、スピーカ7から玉計数レバー5aの操作を促す報知音が入力される。そしてその後、処理が終了する。

【0106】図8は、玉返却処理の処理手順を説明するためのフローチャートである。まず、S40において計数値が0よりも大きいか否かが判断され、0よりも大きな

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くない場合には処理が終了する。一方、0よりも大きい場合にはS41に進む。

【0107】S41では、自動返却スイッチ3cが押圧操作されて自動玉返却モードに設定されているか否かが判断される。自動玉返却モードに設定されていない場合にはS43に進み、玉返却スイッチ3bが押圧操作されたか否かが判断される。押圧操作のない場合には処理が終了する。一方、押圧操作されている場合にはS44に進み、玉返却コマンドが玉返却装置3に出力された後、処理が終了する。一方、S41で自動玉返却モードであると判断された場合にはS42に進み、上面検出情報、下面検出情報、玉箱検出情報のうちいずれかの検出情報が入力されているか否かが判断される。そしていずれかの検出情報が入力されている場合には遊技者が遊技に使用可能なパチンコ玉が存在するものと見なし、処理が終了する。一方、いずれの検出情報も入力されていない場合には玉不足と判断されてS44に進む。そして、玉返却コマンドが送信され、処理が終了する。

【0108】図9は、計数許可・禁止処理の処理手順を示すフローチャートである。まず、S41において、遊技機6の遊技状態が大当りもしくは確変中か否かが判断される。遊技状態がいずれにも該当しない場合にはS42に進み、精算操作が行なわれたか否かが判断される。すなわち、操作音が呼出・発声装置2より入力されたか否かが判断される。なお、操作情報は、出玉カード発行スイッチ2cの押圧操作に基づいて出力される情報である。

【0109】精算操作が行なわれていない場合にはS48に進み、差数が0よりも大きいか否かが判断される。差数が0よりも大きい場合には、その持玉の一部または全部をすでに計数済であるか否かと別として、遊技者が持玉を所有していると考えられる。そこで、差数が0よりも大きい場合には、S412に進む。S412では、差数から計数値を差引いた値、すなわち計算上の未計数玉の数が、-100以上であるか否かが判断される。つまり、遊技者が未計数玉をまだ所有しているか否かが判断される。なお、この計算上の未計数玉の数が、1以上であることをその条件とせず、所定の許容値の一例となる-100以上であることをその条件とする理由は、前述したとおりである。すなわち、貸玉の存在などにより計数値が差数よりも多少多くなくって計算上の未計数玉の数が負数となる場合があり、計算上の未計数玉の数が負数となつていても、遊技の結果所持されたパチンコ玉であつて計数されていないパチンコ玉がまだ残留している可能性がある。そして、この残留している未計数玉の計数を許可するためである。

【0110】そこでS412で計算上の未計数玉の数が、-100以上であると判断された場合には、未計数玉を遊技者が所有しているものとみなし、S41において計数許可処理が実行される。計数許可処理が実行さ

れることにより、計数許容情報が玉箱5へ出力される。これにより、玉箱5で玉計数レバー5aのスライド操作が許容される。そして、その後、処理が終了する。

【0111】一方、SA12で計数上の未計数玉の数が、-100未満であると判断された場合には、異常事態が発生しているものとみなされ、SA13においてエラー報知情報が出発・発行装置2などへ出力される。次にSA9に進み、計数禁止処理が実行される。計数禁止処理が実行されることにより、計数禁止情報が玉箱5へ出力される。これにより、玉箱5で玉計数レバー5aのスライド操作が禁止される。そして、その後、処理が終了する。

【0112】一方、SA8において差数が0未満であると判断された場合には、未計数玉を遊技者が所有しているものとみなし、前記SA9に進み、計数禁止処理が実行される。

【0113】SA2で精算操作が行なわれていると判断された場合、すなわち、大当りや確変が発生していない状態で精算操作が行なわれた場合には、SA3に進む。SA3では、差数と計数値との差の絶対値、すなわち、計数上の未計数玉の絶対値が100以下であるかを否かが判断される。そして、その絶対値が100以下である場合には、遊技者がすべての持玉を精算したものとみなされ、SA5に進む。SA5では、差数カウンタ103dのカウント値が0にリセットされる。差数カウンタ103dのカウント値をリセットする理由については後述する。さらにSA6で前記SA9と同様の計数禁止処理が実行される。

【0114】SA6で計数禁止処理が実行された後、SA7に進み、計数値返ダフラグがセットされる。計数値返ダフラグは、計数値（特点）を出玉カードに記録させる処理を能動化させるためにセットされるフラグである。このフラグがセットされることにより、遊技者に付与すべき出玉数が算出され、カードR/W制御情報が呼出・発行装置2へ出力される。呼出・発行装置2は、このカードR/W制御情報の入力に基づいて出玉カードを出玉カード発行口2cから発行する。

【0115】一方、SA3でNOと判断された場合には、すなわち、遊技者が遊技で所有したパチンコ玉の1部を精算したに過ぎないと見なされ、SA4に進む。SA4では、差数から計数値が差し引かれてその値が新たな差数として差数カウンタ103dにセットされる。【0116】次に、SA14に進み、SA4で計算された新たな差数が0よりも小さくないか否かが判断される。0よりも小さくない場合には、SA15に進み、差数が新たに0にセットされ直される。SA4での計算の結果、新たな差数が0よりも小さくなるということは、実際にはすべての持玉が精算済であると考えられるためである。

【0117】SA14でNOと判断された場合、または

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SA15の後、前記SA7に移行して計数値返ダフラグがセットされた後、処理が終了する。

【0118】また、SA1で遊技機6の遊技状態が当り中もしくは確変中といずれかであると判断された場合にはSA10に進み、精算操作が行なわれたかを否かが判断される。すなわち、操作情報が出発・発行装置2より入力されたかを否かが判断される。

【0119】精算操作が行なわれた場合には、前記SA4に進む。一方、精算操作が行なわれていない場合には前記SA11に進み、前述した計数許容処理が実行される。これにより、玉箱5で玉計数レバー5aのスライド操作が許容されることになる。なお、遊技機6の遊技状態が大当り中もしくは確変中のいずれかにある場合に計数を許容するのは、このような遊技状態であれば多くのパチンコ玉が遊技者に払い出されて計数の必要性が生じるためである。

【0120】ここで、SA5で差数カウンタ103dのカウント値を0にリセットする理由を説明する。差数は、前述したとおり、遊技者が所有している持玉の数を示すものである。したがって、遊技者がすべてのパチンコ玉を計数し終えて精算操作をした時点で、「差数-計数値」を演算すると、計数上はその値は0になるはずである。また、その値が0にならない場合には、遊技者がその値に相当する未計数玉をまだ所有していることを意味する。このことからすると、SA3およびSA5の処理は不要であり、精算操作が行なわれること（SA2）に基づいてSA4の未計数玉の演算を行なって、その演算結果が1以上となる場合には計数禁止処理を実行すればよいと考えられる。

【0121】しかしながら、計数上の未計数玉数と、実際に遊技者が未計数の状態で所有しているパチンコ玉数とは正確に一致するとは限らない。遊技者が遊技の途中でパチンコ玉を上皿6bなどから抜き取り煙草などの品物と交換したり、あるいはパチンコ玉の一部が遊技中に床にこぼれ落ちることがあるため、遊技者の所有している持玉が打込玉と払出玉以外の要因で変動する結果、遊技者の所有している持玉と計数上の差数との間に差が生じる。そして、差数に基づいて演算される計数上の未計数玉数（差数-計数値）にも当然にその差の影響するためである。このような場合には、遊技者がすべての持玉を計数したとしても、計数上の未計数玉数（差数-計数値）は0と一致せず、たとえば、まだ未計数玉が存在するかのような値をとる。

【0122】ところが実際には、すべての持玉が精算されているため、精算後の計数値を0とする処理に併せてさらに差数を0にリセットすべきであるのに、差数をリセットすることなく次の遊技を許容すると、さらに同様の原因で生じた差数が差数に累積されていくことになる。そして、遊技回数が増大するにつれ、実際の遊技者

の持玉数と、差数との差が次第に大きくなるものとなる。このため、たとえば、遊技者は持玉を所有していないにもかかわらず、差数が大きな数値となっているために、本来許されないはずのパチンコ玉の計数が許容されてしまうといった不都合が発生する。

【0123】したがって、この差数を何らかのタイミングで消去してやる必要がある。しかしながら、遊技者の遊技途中に、実際に遊技者が所有している持玉の数を特定して、その数を差数としてセットし直すことは困難である。そこで、この計数許容・禁止処理においては、遊技者が、所有している持玉のすべてを最終的に精算しているであろうタイミングで差数カウンタ103dのカウント値を0にリセットして差数が生じないようにしている。そしてそのタイミングとして、大当りや確変が発生していない状態で精算操作が行なわれており（SA1）、かつ、その時の計数上の未計数玉数が極めて少ない（たとえばこの処理では、その絶対値が100以下）時期を選定しているのである（SA3）。

【0124】ここで、大当りや確変が発生していない状態で精算操作が行なわれたことを条件としているのは、大当り中などに遊技者が遊技を途中で止めて、すべての持玉を精算してしまうことは考えられないためである。また、計数上の未計数玉数が極めて少ないことを条件としているのは、精算時点でまだ計数上の未計数玉数が大きい場合（たとえばこの処理では101以上）には、遊技者が遊技で所有したパチンコ玉の一部を精算したに過ぎないと考えられるためである。一方、計数上の未計数玉数が極めて少ない場合には、その時点で遊技者が実際には持玉のすべてを計数し終えていると見なし、その差数を差数として取扱うのである。

【0125】なお、計数上の未計数玉数が極めて少ない場合、たとえばこのような限定的にして、差数をリセットし（SA5）、かつ、計数禁止処理をする（SA6）、実際にその計数上の未計数玉数分程度のパチンコ玉を遊技者が保有していた場合が問題となる。しかしながら、遊技者が極めて少ない数のパチンコ玉を残して1度精算を済ました後、あらためて残っている極めて少ない数のパチンコ玉を計数して再び精算するなどということは通常考えられない。したがって、このような処理が行なわれることにより、運用上の問題が生じることはない。

【0126】以上の理由により、この計数許容・禁止処理の処理手順では、SA5で差数カウンタ103dのカウント値を0にリセットする処理を行なっている。なお、上記趣旨より、SA3の「100」という数値はこれに限られるものではなく、誤差の範囲と見なす数値であればこれ以下の数値でもこれ以上の数値でもよい。

【0127】図10は、換金率設定処理の処理手順を示すフローチャートである。まず、S91により、換金率がセット済みであるかを否かの判断がなされる。S91に

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より換金率がセット済みであると判断された場合は、この換金率設定処理が終了する。一方、S91により換金率がセット済みではないと判断された場合は、S92に進み、会員カードリーダー28に会員カードが挿入されているかを否かの判断がなされる。

【0128】S92により会員カードが挿入されていないと判断された場合は、会員による遊技機6の使用ではないため、換金率は非会員用の第2の換金率にセットする処理がなされる。一方、S92により会員カードが挿入されていると判断された場合は、S93に進み、会員カードから読出された会員情報を読込んだ会員情報に基づいて、次のS94に進み、S93で読込まれた会員情報に基づいて、次のS95に進み、照合要求情報に照合要求情報を送信する処理がなされる。この照合要求情報が送信されると、管理コンピュータでは、照合要求情報に含まれる会員番号と、登録された会員番号とを照合し、その照合結果を示す照合結果情報を制御装置10に送信する。

【0129】次に、S95に進み、照合要求情報に答える照合結果情報が受信されたかを否かの判断がなされる。S95では、照合結果情報が受信されるのを待つて、S96に進む。S96では、受信した照合結果情報に基づいて、遊技者が会員であるかを否かの判断がなされる。S97に進み、換金率は会員用の第1換金率にセットする処理がなされた後、この換金率設定処理が終了する。一方、S96により遊技者が会員でないと判断された場合は、S98に進み、換金率は非会員用の第2換金率にセットする処理がなされた後、この換金率設定処理が終了する。ここで、S97でセットされる会員用の第1換金率は、前述したように、S98でセットされる非会員用の第2換金率よりも低い換金率である。

【0130】図11は、カードR/W処理の処理手順を示すフローチャートである。まず、S31により、出玉カード発行スイッチ2cの押圧操作による出玉カードの発行操作が行なわれたかを否かの判断がなされる。S31により発行操作が行なわれていないと判断された場合は、このカードR/W処理が終了する。一方、S31により発行操作が行なわれたと判断された場合は、S32に進み、前述した換金率設定処理により設定された換金率を参照する処理がなされる。

【0131】次に、S33に進み、計数値の情報と、S32により参照した換金率の情報とを出玉カードに印込む処理がなされる。次に、S34に進み、計数値および換金率が書き込まれた出玉カードを呼出・発行装置2から排出して発行する処理がなされた後、このカードR/W処理が終了する。

【0132】このように出玉カードが発行されると、遊技者は、出玉カードに印込まれた換金率に基づいて、出玉カードに印込まれた計数値を品物と交換することが可能

【0141】なお、この実施形態においては、遊技者が会員である場合に、非会員よりも換金率を高くする例を説明した。しかし、このように換金率を高くする対象となる者は、会員に限られるわけではない。すなわち、すべての会員を対象として換金率を高くするのではなく、遊技場の使用頻度が高い特別の会員のみを対象として、それ以外の者よりも換金率を高くするようにしてもよい。また、会員および非会員の区分なく、遊技場の経営方針に合わせて、男性の遊技者のみまたは女性の遊技者のみを対象としても、それ以外の者よりも換金率を高くするようにしてもよい。また、会員および非会員の区分なく、遊技場の経営方針に合わせて、所定年齢以上の遊技者のみまたは所定年齢以下の遊技者のみを対象として、それ以外の者よりも換金率を高くするようにしてもよい。

【0142】以上に示した例は、一例であり、特定の遊技者の取品交換率としての換金率をそれ以外の遊技者の換金率よりも高くすることは、予め定められた何らかの特典取得資格を有する遊技者を対象として行なえばよいのである。

【0143】第2実施形態
次に、第2実施形態について説明する。前述した第1実施形態においては、遊技者が会員カードを有する会員である場合に、非会員の場合よりも換金率を高くする例を示した。それに加えて、この第2実施形態においては、会員に会員ランクを付与し、同じ会員であっても、会員ランクにより換金率を異ならせる例を説明する。この第2実施形態においては、重視した説明を避けるため、第1実施形態との相違点を中心として説明する。

【0144】まず、会員ランクと、換金率および会員ランク基礎との関係を説明する。図13は、会員ランクと、換金率および会員ランク基礎との関係を表形式で示す図である。図13においては、会員ランクごとに、換金率および会員ランク基礎が示されている。会員は、第1ランク〜第3ランクの3段階のランクに分けられており、会員ランクは、会員個人の遊技時間を基準としてランク分けされる。最上位ランクである第1ランクは、過去2ヶ月の遊技時間が300時間以上の遊技者に付与され、換金率が4.0(円/玉)に定められる。第2ランクは、過去2ヶ月の遊技時間が150時間以上200時間未満の遊技者に付与され、換金率が3.5(円/玉)に定められる。最下位ランクである第3ランクは、過去2ヶ月の遊技時間が150時間未満の遊技者に付与され、換金率が3.0(円/玉)に定められる。このように、会員ランク毎に換金率が異なっており、会員のランクが上がるにしたがって換金率が高くなっている。この場合においても、第1ランク〜第3ランクの各ランクに対応する換金率は、非会員用の換金率よりも高く設定されている。また、たとえば第1ランクの遊技者であっても、しばらく遊技をせず、その時点で過去2ヶ月間の

遊技時間が300時間を下回った場合は、第2ランクにランクが下がらため、遊技者の遊技意欲を増進させることができる。

【0145】各会員の会員ランクは、図3に示した管理コンピュータ200により、各会員の個人情報として管理される。前述したように、管理コンピュータ200では、会員の遊技者が遊技をしている期間中、制御装置10から会員利用情報が送信されてくるので、その会員利用情報が送信されている時間をその会員の遊技時間とみなして遊技時間を計時し、その計時に基づいて、会員毎の遊技場の使用時間である遊技時間を累積記憶する。そして、管理コンピュータ200では、過去2ヶ月間の遊技時間を会員毎に求め、その過去2ヶ月間の遊技時間に応じて各会員に会員ランクを付与する。各会員の会員ランクは、管理コンピュータ200において各会員の個人情報として管理される。

【0146】次に、第2実施形態による換金率設定処理について説明する。第2実施形態においては、第1実施形態と比べて、換金率設定処理の処理内容が異なる。

【0147】図14は、第2実施形態による換金率設定処理の処理手順を示すフローチャートである。

【0148】まず、S101により、換金率がセット済みであるかどうかの判断がなされる。S101により換金率がセット済みであると判断された場合は、この換金率設定処理が終了する。一方、S101により換金率がセット済みではないと判断された場合は、S102に進み、会員カードリーダー8に会員カードが挿入されているかどうかの判断がなされる。

【0149】S102により会員カードが挿入されていないと判断された場合は、会員による遊技機8の使用ではないため、S111に進み、換金率を非会員用の換金率にセットする処理がなされる。一方、S102により会員カードが挿入されていると判断された場合は、S103に進み、会員カードから読出された会員情報を読み出し、S104に進み、S103で読み取られた会員情報に基づいて、真の会員であるかどうかの判断がなされる。この判断結果に基づいて、真の会員である場合は、照合要求情報を送信する処理がなされる。この照合要求情報に含まれる会員番号と、登録された会員番号とを照合し、その照合結果を示す照合結果情報を制御装置10に送信する。

【0150】次に、S105に進み、照合要求情報に該当する照合結果情報を受信したかどうかの判断がなされる。S105では、照合結果情報を受信されるのを待つてS106に進む。S96では、受信した照合結果情報に基づいて、遊技者が会員であるかどうかの判断がなされる。S106により遊技者が会員ではないと判断された場合は、前述したS111に進み、換金率を非会員用の換金率にセットする処理がなされる。

【0151】一方、S106により遊技者が会員であると判断された場合は、S107に進み、会員ランク要求情報を送信する処理がなされる。この会員ランク要求情報は、会員である遊技者に付与された会員ランク(第1ランク〜第3ランク)の情報を管理コンピュータ200に要求するための情報であり、遊技機6で遊技を行なっている遊技者を特定する情報および会員ランクの返信を要求する情報を含んでいる。この会員ランク要求情報は、前述した照合要求情報とは別に、制御装置10から管理コンピュータ200に送信される。

【0152】会員ランク要求情報が制御装置10から送信されると、管理コンピュータ200では、管理している会員の個人情報に基づき、会員ランク要求情報に応じて、該当する会員の会員ランクを特定可能な会員ランク情報を制御装置10に送信する。次に、S108に進み、会員ランク要求情報に該当する会員ランク情報を受信したかどうかの判断がなされる。S108では、会員ランク情報が受信されたのを待つてS109に進む。S109では、受信した会員ランク情報に基づいて、遊技者の会員ランクを判別する。

【0153】次に、S110に進み、遊技者の換金率を会員ランクに応じた換金率にセットする処理がなされる。具体的には、前述した図13に示されるような会員ランクと換金率との関係を示すデータが制御装置10に記憶されており、そのデータを用いて、S109で判別した会員ランクに応じた換金率を選択し、その換金率を遊技者の会員ランクに応じた換金率としてセットする。ここで、S109でセットされる会員ランク別の換金率は、S111でセットされる非会員用の第2換金率よりも高い換金率である。S110の後、この換金率設定処理が終了する。

【0154】以上に示したように、この第2実施形態においては、第1実施形態の場合と同様に、遊技者が正規の会員カードを使用する会員である場合に、非会員である場合よりも換金率が遊技者に有利になるように高くされる。このため、同じ遊技結果値であっても、会員という特典を受ける資格を有する方が有利な方よりも換金率の点で有利になるので、遊技者は、会員である場合に、遊技の結果に対して期待感を待ち、遊技に際して興起が向上する。また、会員になると換金率の点で有利になるため、会員を増加させることができるという効果を期待することができる。

【0155】さらに、この第2実施形態においては、同じ会員であっても、会員ランクに応じて取品交換率としての換金率が異なり、会員ランクが上位ランクになるにしたがって、換金率が高くなる。このため、同じ会員であっても、会員ランクが高い方が会員ランクが低い方よりも換金率の点で有利になる。このため、遊技者は、高い会員ランクである場合に、遊技の結果に対してより一層期待感を待ち、遊技に際してより一層興起が向上する。

である。したがって、会員の資格を有する遊技者は、非会員の遊技者よりも有利な条件で取品交換することができ

【0133】図12は、遊技機6の遊技状態と計数動作の禁止・許容のタイミングとを説明するためのタイミングチャートである。

【0134】なお、このタイミングチャートでは、前述した特玉遊技を制限する方式(特玉遊技方式)として、ラッキーナンバー方式が採用されている場合を例として説明する。

【0135】まず、確変図柄以外の大当たり図柄で大当たりが発生して、遊技機6の遊技状態が通常状態から大当たり状態に変化する。この変化に伴って、計数動作が禁止された状態から許容される状態となる。また、大当たり中に入賞玉が発生すれば多量の払出玉が生じて差数(払出玉数-打込玉数)が正数となる。

【0136】その後、大当たりが終了しても、差数が正数である限り、計数動作の許容された状態が継続する。遊技者が玉計数レバー5aをスライド操作して、遊技の結果値がすべてのパチンコ玉を特点に変換した後、出玉カード実行スイッチ2cを操作して精算すれば、差数が0にリセットされるとともに計数動作が禁止された状態となる。

【0137】その後、確変図柄により大当たりが発生すれば、前回同様に計数動作が許容された状態となる。このとき差数が正数となる。そして、その後、大当たりが終了しても確変が継続する限り、計数動作の許容された状態が継続する。

【0138】その大当たりが終了した後、遊技者が前述と同様に精算すれば、差数が0にリセットされるとともに計数動作が禁止された状態となる。

【0139】さらに、その後、図示する最後の大当たりがラッキーナンバーで発生し、その大当たりが終了する。この時、大当たり中に発生した多量の払出玉により差数が正数となるとおり、計数動作を許容された状態にある。ここで遊技者が玉計数レバー5aをスライド操作して、遊技の結果値がすべてのパチンコ玉を特点に変換した時点で差数が0にリセットされ、計数動作が禁止された状態となる。

【0140】以上に示したように、この第1実施形態によれば、遊技者が正規の会員カードを使用する会員である場合には、非会員である場合よりも換金率が遊技者に有利になるように高くされる。このため、同じ遊技結果値であっても、会員という特典を受ける資格を有する方が有利な方よりも取品交換率としての換金率の点で有利になるため、遊技者は、会員である場合に、遊技の結果に対して期待感を待ち、遊技に際して興起が向上する。また、会員になると取品交換率としての換金率の点で有利になるため、会員を増加させることができるという効果を得ることができる。

／玉が3000個である場合は、貯玉合計値が15000個である。この貯玉合計値を金額に換算すると、47000円になる。

【0171】換金率ごとに貯玉数を管理し、貯玉再プレイ時には、再プレイを行なう遊技機の換金率と同じ換金の貯玉から再プレイ用の玉が遊技者に払戻されるようにしてもよい。この場合には、遊技者に払戻された換金の貯玉数が払戻数だけ減算されて管理される。

【0172】また、貯玉を貯玉合計値により管理し、貯玉再プレイ時には、再プレイを行なう遊技機の換金率に払戻し個数を乗じた金額を貯玉合計値から減算することにより貯玉データを管理するようにしてもよい。具体的には、もし、換金率が2.5円／玉の遊技機で再プレイを行なう場合には、2.5円／玉×払戻し個数の金額を47000円から減算し、残りの金額を貯玉金額として管理する。

【0173】また、貯玉を貯玉合計値により管理し、貯玉再プレイ時には、再プレイを行なう遊技機の換金率にかかわらず、換金率の平均値に払戻し個数を乗じた金額を貯玉合計値から減算することにより貯玉データを管理するようにしてもよい。具体的には、2.0円／玉、2.5円／玉、3.0円／玉、3.5円／玉、4.0円／玉の平均値は3.0円／玉である。したがって、再プレイを行なう場合には、3.0円／玉×払戻し個数の金額を47000円から減算し、残りの金額を貯玉金額として管理する。

【0174】以上のような貯玉の管理を行えば、換金率を複数種類設定した場合であっても、貯玉の管理を容易に行なえる。

【0175】(6) 前述した呼出・発行装置2等の呼出しランプに抽選を実行できる機能を持たせ、遊技開始時に遊技者が抽選を行ない、その抽選の結果にしたがって換金率を設定するようにしてもよい。その場合に設定された換金率は、遊技の終了まで有効である。すなわち、抽選に当たった遊技者に特典取得資格を付与してもよい。このようにすれば、遊技開始時に換金率が決まるので、遊技者の興趣が向上する。

【0176】(7) 1台の遊技機6における一人の遊技者の可変表示装置の始動開始回数を前述した制御装置10等の管理装置により累積算出し、その回数が所定回数（たとえば1000回）以上になった場合に、換金率を通常の換金率より高い換金率にするようにしてもよい。すなわち、始動開始回数が所定回数になった遊技者に特典取得資格を付与してもよい。このようにすれば、長時間遊技をした遊技者に換金率についての特典が付与されるので、遊技者の興趣が向上する。

【0177】(8) 遊技場に女性専用台と呼ばれる女性遊技者が平用使用できる遊技機がある場合に、その遊技機の換金率のみを通常の換金率より高い換金率にするようにしてもよい。すなわち、女性の遊技者に特典

の結果に基づいて、遊技者が会員であるかを判断する。このようにすれば、セキュリティを向上させることができる。

【0184】(15) 前述した(3)に示された変形例の技術を遊技機設置島単位での構成に適用してもよい。具体的には、前述したような計数後の玉、アウト玉および入賞玉を遊技機設置島内で循環使用する構成の遊技機設置島を対象とする。その遊技機設置島においては、島内の各遊技機に玉を供給するための玉タンクを島内に1つずつおいて、玉の払出し等に応じて各遊技機に玉タンクから玉が供給されるとともに、回収された玉が研磨されて再び玉タンクに戻されることにより、島内で玉が循環使用される。そのような遊技機設置島では、島内で玉が循環使用されるため、全体の玉保有個数が一定の個数に保たれるのが正常な状態である。さらに、そのような遊技機設置島において、玉タンク内の玉の個数をセンサにより検出する（検出精度は、たとえば1000個単位程度でよい）。そして、「補給玉個数－打込玉個数」の演算により求められる差数に基づいて各遊技者が玉箱5内にある玉の数を各遊技機について把握し、それらの玉の持込みがある場合とみなし、異常状態が発生した旨の判定および報知等のエラー処理を行なう。このようにすれば、他の遊技機からの玉の持込みを防ぐことができるので、換金率に関する不正行為を遊技機設置島単位で防ぎ、換金率を変化させる場合のセキュリティを向上させることができる。

【0185】(16) 前述した(15)の構成は、ユニット島と呼ばれる構成の遊技機設置島にも適用可能である。ここでユニット島とは、1ユニットあたり表側および裏側で4台の遊技機を設置可能な遊技機設置島ユニットを、複数ユニット連結して1つの遊技機設置島が構成可能なものをいう。このようなユニット島では、1ユニット毎に前述した玉タンクを有し、1ユニット内で独自に前述したような玉の循環使用が行なわれる。このようなユニット島について(15)に示したような玉の玉数の管理を行なえば、さらに高精度で玉の持込みを防ぐことができ、換金率に関する不正行為をさらに高精度で防ぐことができる。

【0186】(17) 以上の実施の形態において説明した換金率は、換金率に含まれる減価である。この換金率には換金率の他に一般品交換率も含まれるため、一般品交換率も、前述した換金率と同様の取扱いをするようにしてもよい。

【0187】
【課題を解決するための手段の具体例】

(1) 図10に示されたステップS92～S96により、遊技者が予め定められた特典取得資格（会員の資

格）を有するか否かを判断する資格判断手段が構成されている。図10に示されたステップS97、S98により、前記資格判断手段の判断結果に応じて、遊技者の所有となった遊技結果価値（玉の計数値）の景品交換率（換金率）を決定する景品交換率決定手段が構成されている。就景品交換率決定手段は、遊技者が前記特典取得資格を有する場合に、遊技者が前記特典取得資格を有しない場合よりも遊技者にとって有利な景品交換率（高い換金率）に遊技者所有の遊技結果価値の景品交換率を決定する。

【0188】(2) 図1に示された呼出・発行装置2により、遊技者の所有となった遊技結果価値を特定可能な情報（パチンコ玉の計数値）および前記景品交換率決定手段により決定された景品交換率を特定可能な情報を記録した記録媒体（出玉カード）を発行する記録媒体発行手段が構成されている。

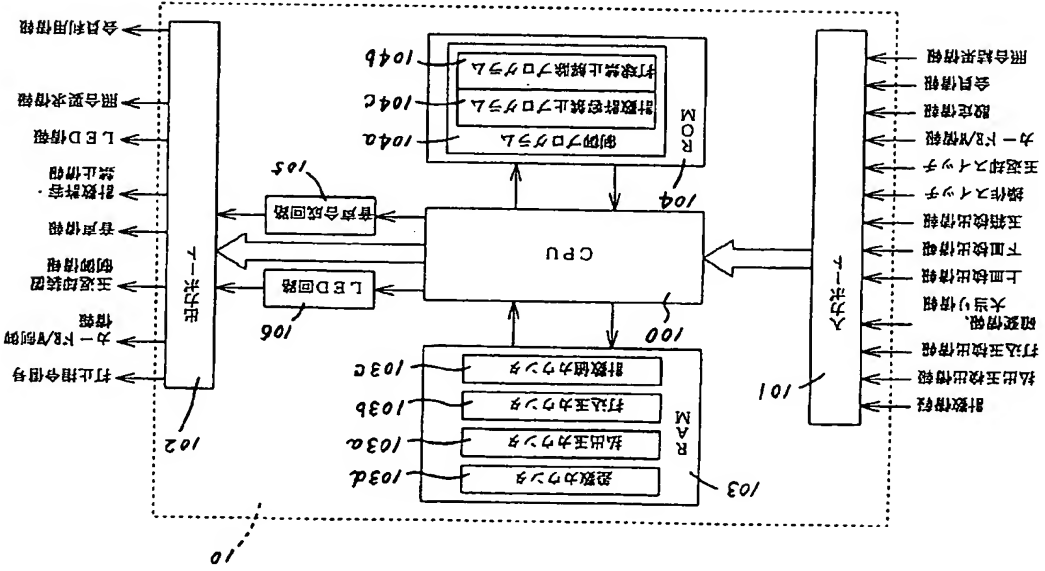
【0189】(3) 図13に示されるように、前記特典取得資格を有する遊技者は、前記特典取得資格内において、前記遊技結果価値の景品交換率が異なる複数のランク（会員ランク）のうちの何れかのランク（会員ランク）を有する。図14のステップS110に示されるように、前記景品交換率決定手段は、前記特典取得資格を有する遊技者の景品交換率を決定する場合に、その遊技者の前記ランク（会員ランク）に応じて景品交換率を決定する。

【0190】
【課題を解決するための手段の具体例の効果】 請求項1に関しては、次のような効果を得ることができる。遊技者が予め定められた特典取得資格を有すると判断された場合には、その特典取得資格を有しない場合よりも遊技者所有の遊技結果価値の景品交換率が遊技者にとって有利な景品交換率に決定される。このため、同じ遊技結果価値であっても、特典取得資格を有する方が有しない方よりも景品交換率の点で有利になる。遊技者が特典取得資格を有する場合に、遊技の結果に対して遊技者に期待感を持たせることができ、遊技に際して遊技者の興趣を向上させることができる。すなわち、遊技結果価値の景品交換率を用いて遊技者の興趣を向上させることができる。

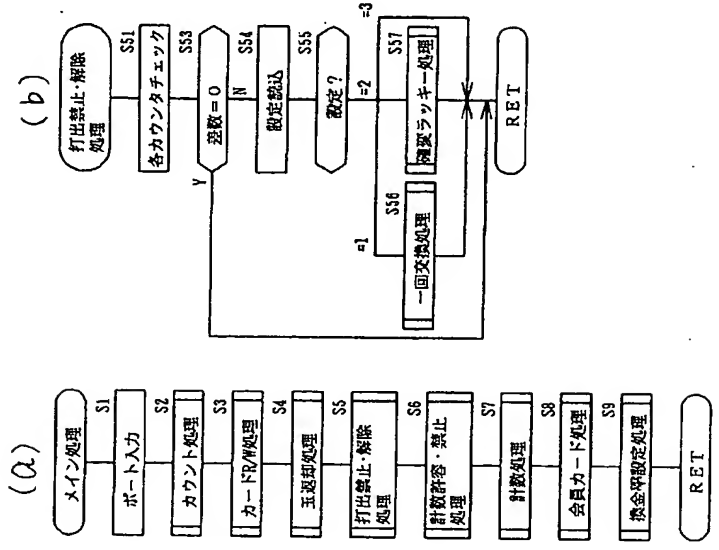
【0191】請求項2に関しては、請求項1に関する効果に加えて次のような効果を得ることができる。記録媒体の発行により、遊技者の所有となった遊技結果価値およびその景品交換率が記録媒体の記録情報によって特定されるため、その記録媒体に記録された景品交換率で遊技結果価値を景品等に交換することが容易にできる。

【0192】請求項3に関しては、請求項1に関する効果に加えて次のような効果を得ることができる。特典取得資格を有する遊技者は、遊技者のランクに応じて異なる景品交換率を得ることが可能になる。遊技者が特典取得資格を有する場合に、遊技の結果に対して遊技者

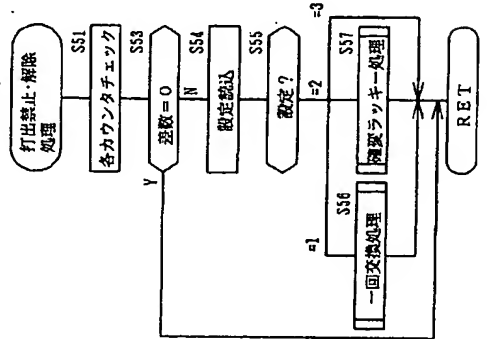
【図4】



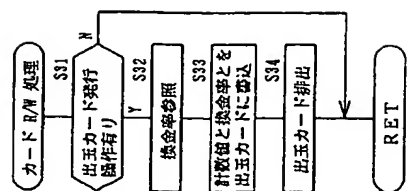
【図5】



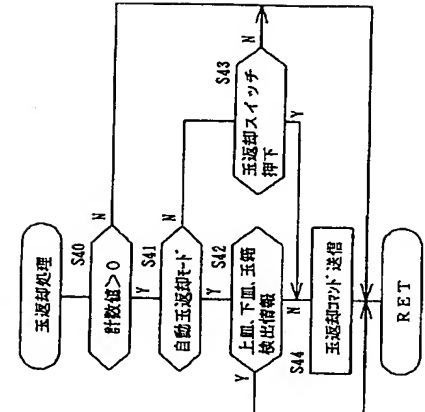
(b)



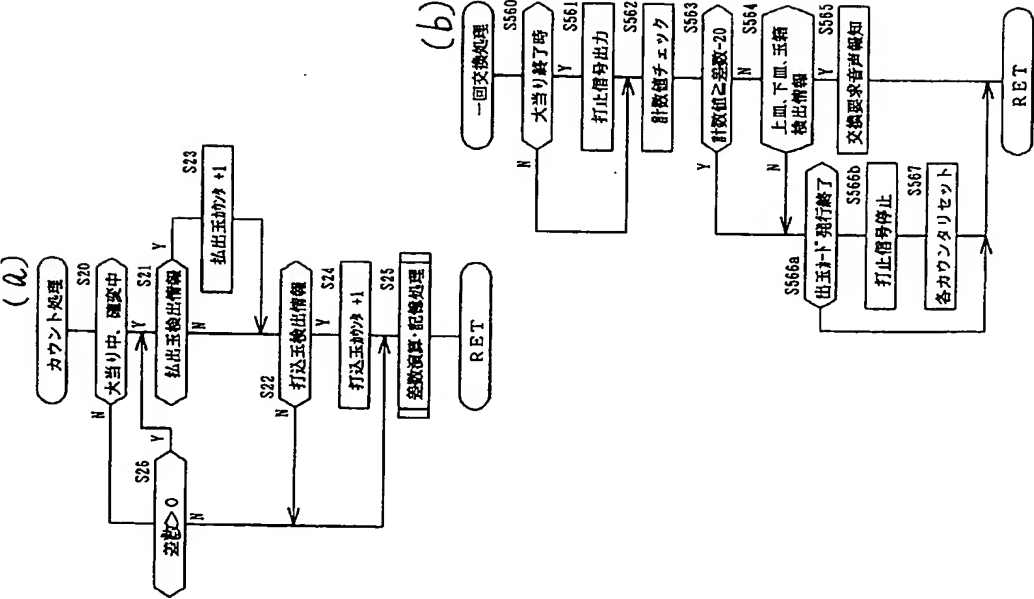
【図11】



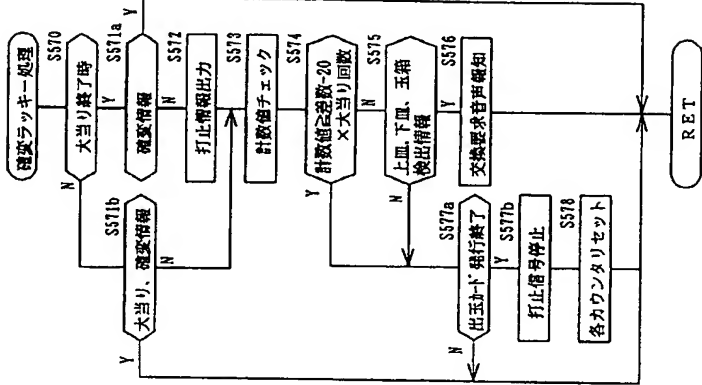
【図8】



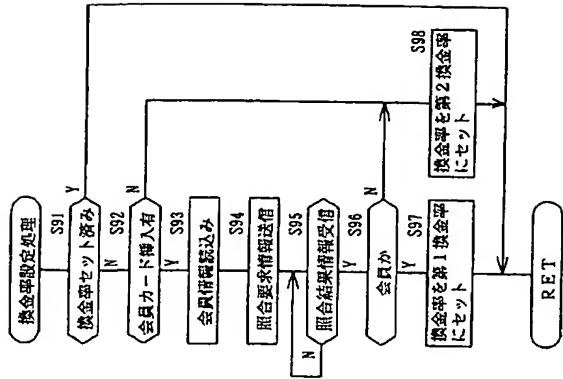
〔図6〕



〔図7〕

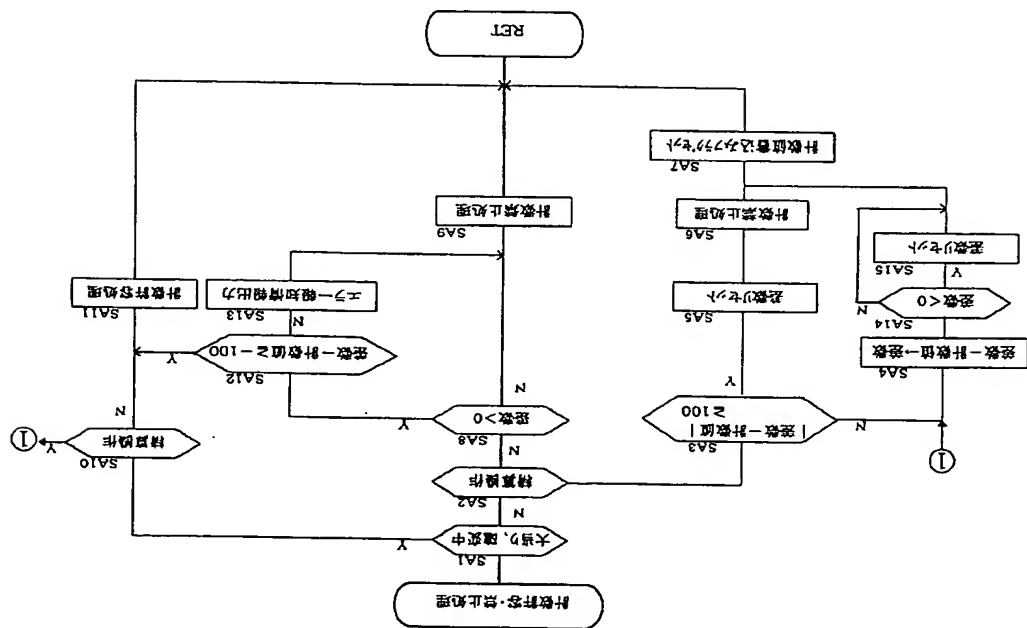


〔図10〕

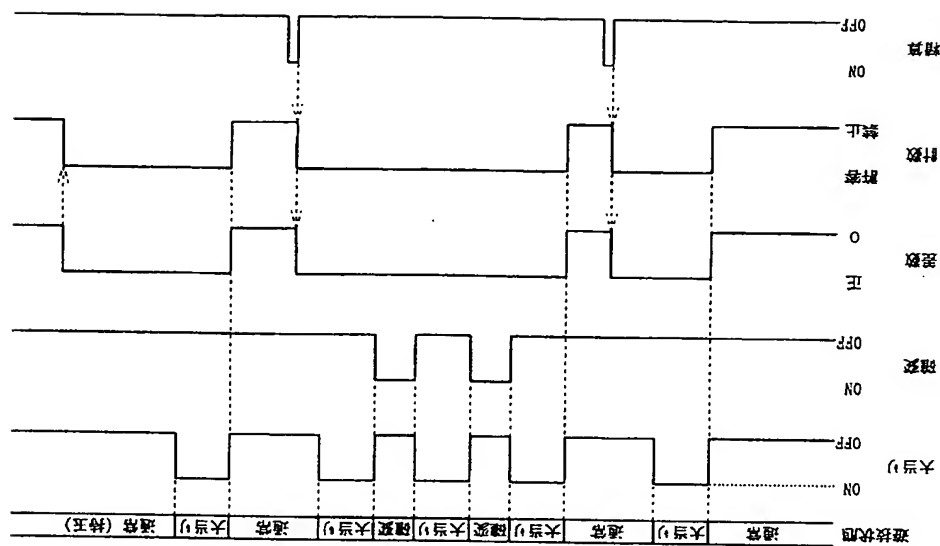


〔図13〕

| 会員ランク | 換金率 | ランク基準 |
|-------|--------|----------------------------|
| 第1ランク | 4.0円/玉 | 遊技時間が過去2ヶ月間で300時間以上 |
| 第2ランク | 3.5円/玉 | 遊技時間が過去2ヶ月間で150時間以上300時間未満 |
| 第3ランク | 3.0円/玉 | 遊技時間が過去2ヶ月間で150時間未満 |



【图9】



【図14】

